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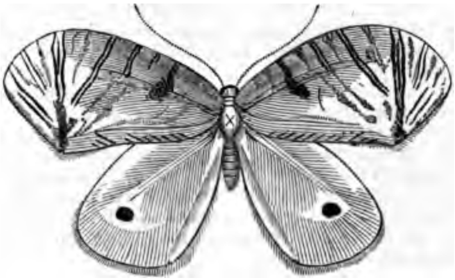
THE

ENTOMOLOGIST

CONDUCTED BY

EDWARD NEWMAN.

VOLUME VIII.



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"Insects are usually pointed out to us by those who are about us as ugly, filthy, and noxious creatures; and the whole insect-world—butterflies, perhaps, and some few others excepted—are devoted by one universal ban to proscription and execration, as fit only to be trodden under our feet and crushed; so that, often, before we can persuade ourselves to study them we have to remove from our minds prejudices deeply rooted and of long standing." —Kirby and Spence.

"The importance of insects to us, both as sources of good or evil, I shall endeavour to prove at large hereafter; but for the present, taking this for granted, it necessarily follows that the study of them must also be important: for when we suffer from them, if we do not know the cause, how are we to apply a remedy that may diminish or prevent their ravages? Ignorance in this respect often occasions us to mistake our enemies for our friends, and our friends for our enemies; so that when we think to do good we only do harm, destroying the innocent and letting the guilty escape. Many such instances have occurred. Middleton, in his 'Agriculture of Middlesex,' speaking of the plant-louse that is so injurious to the bean, tells us that the ladybirds are supposed either to generate or to feed upon them. Had he been an entomologist he would have been in no doubt whether they were beneficial or injurious; on the contrary, he would have recommended that they should be encouraged as friends to man, since no insects are greater devourers of plant-lice."—Id.

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THE ENTOMOLOGIST.

No. 138.] JANUARY, MDCCCLXXV. [Price 6d.

Recovery of Epping Forest.

At a late meeting of the Coal, Corn and Finance Committee of the Corporation of London, Mr. R. Cox, Chairman of the Committee, presented a report of the judgment of the Master of the Rolls in the suit instituted by the City Commissioners of Sewers against all the lords of manors of Epping Forest. It was received with cheers.

Mr. J. T. Bedford, a leading member of the Court, addressing the Lord Mayor, said, as he had been looking forward to that day for the last two years, he might be allowed to inform the Court what the Corporation had actually done in this matter. In May, 1871, the Corporation, on his motion, unanimously agreed, at any cost, to try by all legal means to preserve Epping Forest for ever as a recreation ground for the people. His committee had an interview with the Government, and were referred to Mr. Ayrton, who showed them a Bill he had prepared, appointing a Commission to prepare a scheme for preserving the Forest. He [Mr. Bedford] suggested the propriety of introducing a clause preventing further enclosures or waste until the commission had reported. This Mr. Ayrton flatly refused to do. The Bill was passed, and Parliament rose for the recess. Meanwhile, in August, the Corporation filed their first Bill in Chancery, and then the vacation stopped further progress. Directly it was discovered that the Bill contained no clause preventing further enclosures, the lords of the manor went to work with a will, and recommenced felling timber, building houses, cutting turf, and even ploughing up some of the most beautiful parts of the Forest. Then the Corporation set to work with its customary vigour, and, although it was vacation time, they found a Vice-Chancellor, fetched up to town a Registrar from his sea-side holiday, obtained an injunction, and thereby stopped further proceedings for that year. In the meantime the old Forest Court of Verderers had been assembled, and he had the pleasure of listening to nearly a hundred presentments of illegal enclosures, ranging from one acre by a right reverend prelate, to a hundred acres enclosed by the clergyman of the parish,—the shepherd of the flock,—who, in a sermon preached by him a few days afterwards, actually took for his text—"The love of money is the root of all evil." There was also a case of enclosing five hundred and seventy acres by a noble earl, whose agent afterwards indignantly denied the charge, saying he had only enclosed five hundred and sixty-three, and left seven for the people. A gallant admiral had likewise marked one thousand one hundred and thirty trees to be felled at High Beach, the most beautiful part of the whole Forest. In 1872 the Corporation Bill came on in Chancery, and their usual leading counsel was taken away from them on the ground that, being a Q.C., he was at the call of the Crown when it chose to exercise its right. The result was that he appeared against them, and took the only objection on demurrer that was fatal to the Corporation Bill, and they had to pay about £580 in costs. Nothing daunted they began again, the Government charging them with double costs. In the meantime a second Bill was introduced into Parliament by the Government, remedying the former defect, and empowering the Commissioners to issue orders preventing further enclosures. That was introduced into the House of Lords, but, thanks to Lord Salisbury, a clause staying all legal proceedings was altered, so as to make the case of the Corporation an exception. Meanwhile the second Bill of the Corporation in Chancery came on for hearing, and was again opposed on demurrer; but they were successful on that occasion, and an appeal to the Lords Justices failed to alter the decision. The legal cobwebs being now swept away, their cause stood ready for argument. When Parliament rose the agents of the lords of the manor discovered that, although the Commission had power to issue orders forbidding further enclosures and waste, it had no power to enforce them. Again the Corporation came to the rescue, and in no less than fourteen different cases—by threat, done in resisting the aggression. They have held a few meetings, certainly; but for the most part have submissively allowed the depredator to enter and despoil their property. This should not have been so. Englishmen should have some feeling of a community of interest in property bequeathed to them by their ancestors, and of which they had held undisturbed possession from time immemorial: they ought to stand shoulder to shoulder in defence of their common right. It were a cowardly and contemptible policy to argue—"This is no business of mine; the injury is done to thousands of others quite as much as to me; I am but an individual; single-handed I am impotent against the overwhelming influence of wealth." Such were the arguments advanced in defence of apathy and indifference. I fear we are a degenerating, an ease-loving people. I see Germans, Russians, French, Americans, going ahead of us—in arts, manufactures, and commerce—all the world over. We want self-respect, self-reliance, tenacity and unity of purpose. The man who will sit by with folded hands while his wealthier neighbour runs a fence across his potato plot, or the common where his horse or his cow feeds, is not likely to resist, or even to object, when a more powerful neighbour seeks, in the lust of conquest, to annex his country.

But there is another point for me to notice; and I must render honour where honour is due. The Corporation of London has too long, perhaps undeservedly, been regarded as an organization for eating and drinking, and taxing its fellow-citizens. It has now nobly redeemed its character. If these charges were ever true, they are true no longer. The Corporation now stands forth as the Protector of the People's property, and will be honoured hereafter by all good and just men.

EDWARD NEWMAN.

Cynips lignicola on Quercus Phellos.—I have frequently noticed the Devonshire gall on a willow-leaved oak (Quercus Phellos) at Southgate, which, as the tree is rather scarce, may not have been remarked elsewhere. It is singular that the insect should recognize in this tree, so different in appearance from others of the same genus, a fitting place for the growth of the future gall.—*Fredc. Walker; Oakley House, Abingdon.*

and the stigmata (fig. 3) were elliptical, with a slight undulation of the sides. Although there was no difference in the shape of the head of my two larvæ, the ground tone of the colour was different, as was also the appearance of the pale, sepia-coloured spot on the vertex. In one the colour was faint reddish yellow, with two wedge-shaped transverse spots separate from each other; in the other the head was yellow, of the colour of wax, with a large transverse spot on the vertex, terminating in a point at either end. In both, the eyes, which were small, were placed in very deep black round spots. The head of the first-named species is represented at fig. 2.

Fig. 1 was drawn about a week too soon, as the larva was not then full grown. They grow nearly to the size of fig. 2, on plate 3 of the second volume, and then the little wart-like eminences on the sides are more projecting, and are of a still paler tint. Further, it will be hardly necessary to add that the larva had twenty-two legs, but it is worthy of record that the claws of the anterior legs were black.

I have not been able to observe that the larvæ in question had the faculty of ejecting fluid from their sides, as is the case with other Cimbices; I also failed to perceive any openings or valves above the stigmata: the same negative observation is made by Brischke.

On the 25th of July the larvæ began to spin up among the twigs of the birch. The cocoon (fig. 4) was hard, and of a brown colour. As I had only two cocoons I did not like to open one, and so I am unable to say anything about the pupa, which, in all probability, strongly resembles that of the so nearly allied species.

On the 9th of April of this year (1868) I found two males alive in the box in which I had kept the cocoons, from which a little round piece had been cut out in the usual way; we had had rather warm and very sunny days towards the end of March and the beginning of April.

The following is a description of these two males, one of which is represented, with the wings extended, at fig. 5; the other, at rest, at fig. 6:—

At the first glance the whole body appears to be black, but on closer examination it is seen to be of a dark, bronzy earth-colour. The head below the antennæ, the clypeus, the country might expect sometimes to meet with many individuals of this species together.

I have now described the following species of the genus Cimbex in the pages of this journal:*—C. connata, *Schr.* (vol. vii. p. 59, pl. 1 and 2); C. axillaris, *Panz.* (vol. v. p. 49, pl. 1); C. Lucorum, *L.*; C. Vitellinæ, *L.* (C. lateralis, *Leach*, vol. vi. p. 65, pl. 4); C. Betuleti, *Hart.* (called by Zaddach, C. Cratægi, vol. ii. p. 63, pl. 3); C. Amerinæ, *L.* (vol. iii. p. 104, pl. 8); and, of the very nearly-alled genus Abia, the species A. ænea, *Kl.* (A. nigricornis of Leach, vol. i. p. 144, pl. 5). There thus remain for me to describe Cimbex Saliceti, *Zadd.*, observed by Lyonet and Voet in the Netherlands; Cimbex Sorbi, *Hart.*, if the species, as I suspect, occurs in this country; together with Abia fasciata, *L.*, and Abia sericea, *L.*, of both of which the imagos have been observed here.

The Classification of the Rhynchophorous Coleoptera.

By John L. LeConte, M.D.

(Continued from vol. vii. p. 285.)

Series 2. Allogastra.

Abdomen dissimilar in the two sexes; dorsal segments, 1st to 6th, coriaceous or membranous, 7th large, corneous, undivided in the female, divided into two in the male; ventral segments prolonged upwards, forming a sharp edge, fitting into a corresponding groove on the inner face of the elytra, which are without epipleuræ. The beak and oral organs vary greatly in form, as do also the antennæ, the tarsi, the ungues, and the position of the coxæ; the 1st and 2nd ventral segments are most frequently connate, and the 3rd is always shorter than the 2nd; the 5th is longer than the 4th. The following families seem to be indicated by the material I have examined:—

A. Antennæ with a solid annulated club.
  a. Tarsi narrow.
    Gular margin very prominent; mentum retracted.
      Prosternum not excavated. - AMYCTERIDÆ.

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* 'Tijdschrift voor Entomologie.'

Prosternum excavated.	Byrsopidæ.
Gular margin not prominent; mentum large, concealing the mandibles, which are not scarred at the tip.	Brachyceridæ
b. Tarsi dilated, usually with a brush of hair beneath.	
Mandibles with deciduous tip, leaving a scar.	Otiorhynchidæ.
Mandibles simple, usually pincer-shaped.	Curculionidæ.
B. Antennæ with eleven separate joints.	Brenthidæ.

Concerning Amycteridæ and Brachyceridæ but little need be said: they are very peculiar and easily-recognized forms, not represented in our Fauna.

The first is Australian: the antennæ are slender and geniculated; the beak short and stout, deeply emarginate at tip, alike in both sexes; the buccal opening is very large, and the cavity is filled almost completely by the mandibles, which are convex, hairy on the greater part of the front surface, deflexed, deeply concave beneath; the gular margin is thickened and prominent, so that a deep cavity is seen between the gula and the mandibles, in which the mentum and oral organs are concealed from view; the eyes are small, and nearly round in some, narrowed beneath in others; the front coxæ are contiguous; the prosternum very short; the elytra are connate, and extend far over the flanks, so that the side pieces—both of the mesothorax and metathorax—are concealed; the dorsal segments of the abdomen are membranous, except the last, which is very large, corneous, and convex, more so in the male than in the female,—in the former it is truncate behind, exposing a semicircular 8th segment, from under which protrudes (Psalidura) a very powerful and complex genital armature, consisting of a large pair of forceps, conical-obtuse, punctured, and hairy, under which, and seen only from below, is a pair of transverse, thin, polished, corneous plates, also meeting on the median line; between them and the forceps is a large deep cavity; the ventral segments are scarcely less singular; the 1st and 2nd segments large, flat, connate, united by a sinuate suture; 3rd and 4th very short, separated by deeply-excavated straight sutures; 5th much larger; in the male very deeply and semicircularly excavated, almost to the base, with a tuft of stiff bristles each side at the front edge of the excavation; in the female this segment is flat, and meets the last dorsal at tip in the usual manner; on the sides the lateral upward extension of the 5th ventral is very large, but the spiracle is visible; the extension of the 4th and 3rd segments are much smaller, and imbricated upon the 5th and 4th respectively; the side margin of the 1st and 2nd is very narrow, and the side pieces of the metasternum are scarcely visible; the elytra are connate, with the lateral groove of the inner face narrow and sharply defined, becoming broader and indefinite at the posterior 4th; on the inner face are seen eight rows of punctures, corresponding to ridges of tubercles on the back; the tarsi are 4-jointed, narrow, or at least the third joint not wider than the others, deeply grooved beneath; the tibiæ are truncate, without spurs, the front pair a little incurved at tip in both sexes; claws simple, not contiguous. The genera of this family are stated by Mr. Jekel* to differ by the form of the eyes, some being Cyclophthalmes, others Oxyophthalmes; also, in the antennal grooves, some being Obliquiscrobes, others Lateriscrobes. The vestiture of the under surface of the tarsi varies in different genera: in Psalidura they are spongy sericeous beneath; in others, ciliate or spinous. In other genera the sexual characters are less remarkable than in Psalidura, and will be found to consist chiefly in the division of the last dorsal segment into two, as in the other families of the series.

The Brachyceridæ are restricted to Africa and the neighbouring parts of Europe and Asia: they are stout insects, with ventricose elytra, suddenly deflexed behind, and extending far upon the flanks, like the first tribes of Tenebrionidæ, which they also resemble in the large mentum, flat, filling the whole of the buccal cavity; the beak is short and stout, thicker at the extremity, alike in both sexes; the antennal grooves are wanting (Episus), or deep and directed downwards, almost confluent in the gular region (Brachycerus, Microcerus); the antennæ are short, straight, or feebly geniculate, scape forming less than one-third the length; joints of the funiculus seven, rather short; club solid, obconical, truncate or subacuminate at tip; eyes rounded or

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* Ann. Ent. Soc. France, 1864, 544.

transverse, and acuminate at the lower end; mandibles stout, short, more prominent in Brachycerus, where they have the lower margin more produced into a cutting edge; the front surface is rough and somewhat angular, but without any trace of the rounded scar seen in Otiorhynchidæ; the scutellum is scarcely visible; the elytra, as above mentioned, are ventricose, irregularly tuberculate or costate, very much extended on the flanks, so as to cover the side pieces of the mesothorax and metathorax, greatly deflexed behind; the lateral groove of the inner face is deep and narrow, becoming wider and obsolete behind; the dorsal segments are membranous, except the last, which is corneous, and divided in the male into two, as in Curculionidæ; the ventral segments are separated by deep sutures, of which the first is sinuate; the 3rd and 4th segments are shorter than the others; the lateral extension upwards is narrow, and but slightly wider behind; the front coxæ are contiguous, prominent, and subconical; the tibiæ are not dilated; the spurs are small, fixed, projecting inwards; the tarsi 4-jointed, narrow, setose, and feebly concave beneath (Brachycerus); pubescent, concave, and emarginate beneath (Microcerus); claws large, simple, distant.

BYRSOPIDÆ.

The third of the anomalous families has a more general distribution, and is represented in our Fauna by the genus Thecesternus, which forms a separate tribe, distinguished from the other tribes by the prosternal groove for the reception of the beak, not extended as far as the front coxæ. These insects are epigeal, rough, and dull coloured, with the elytra widely embracing the flanks, but not strongly deflexed behind, concealing the side pieces of the trunk; the beak is very short, not thickened at tip, nor emarginate at the middle; the antennal grooves descend perpendicularly, and form a gular constriction; the antennæ are unusually short, imperfectly geniculate; the scape as long as the first and second joints of the funiculus; the club elongate-oval, pointed, distinctly annulated; eyes transverse, pointed beneath;* mandibles stout, short, front surface curved and

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* Jekel, l. c. 1864, 543, describes the group as being Adelognathes cyclophthalmes. Lacordaire (Gen. Col. vi. 293 sqq.) places them in Phanerognathes, and describes the eyes as acuminate below, in which he is correct.

roughly punctured; mentum very small, not placed on a gular peduncle; maxillæ exposed; prothorax widely lobed in front at the sides, so as to conceal the eyes when the head is deflexed, deeply excavated beneath for the reception of the beak; cavity closed behind in Thecesternus by a triangular plate of the prosternum, but by the front coxæ in the other genera; coxæ small, globose, contiguous; elytra connate, widely extended on the flanks, declivous behind, rough; lateral groove of inner face narrow and well defined; scutellum not visible; humeri in Thecesternus prolonged forwards, so as to extend along the sides of the prothorax; dorsal segments membranous, last one large, corneous, divided into two in the male; ventral segments unequal; 1st and 2nd very large, more closely connected, suture arcuated; 3rd and 4th short, sutures deep; 5th as long as the two preceding; lateral extension moderately wide, wider behind; pygidium articulating with both 4th and 5th ventrals; legs slender; tibiæ truncate; spurs small; tarsi 4-jointed, narrow, setose beneath. Several species of Thecesternus are found in the interior regions of the continent, from Illinois to Utah, under dried buffalo excrement, and similar objects.

JOHN L. LECONTE.

Abundance of Larvæ near Plymouth in June, 1872. By GERVASE F. MATHEW, Esq., R.N., F.L.S.

A FEW days before I left Plymouth, in 1872, I went with my friends, Messrs. Bignell, Bishop, Gatcombe, and Jones, for a farewell entomological ramble in the woods in the neighbourhood of Bickleigh Vale; and, as I have seen no account of this day's expedition in the 'Entomologist,' I send it to you now, in the hope that it may be interesting to some of your readers at this time of the year, when so little out-door work is doing.

The 28th of June, 1872, was a delightful day in every respect,—bright, warm, and fresh,—one of those days we so often get in Devonshire at that time of the year, when everything looks joyous, and all living creatures seem to possess twice the amount of vitality they usually have. We left branches in search of food. If we stood still and listened we could plainly hear the jaws of this countless host at work as they were ravenously feeding, and their frass dropping on the dead leaves below sounded like falling hail. We soon commenced beating, but it was fearful work, every blow of the stick actually bringing quarts of larvæ into our calico-trays (a most ingenious invention of Mr. Bignell's), and as we walked we could not avoid treading on larvæ which were crawling on the ground, besides which we were soon covered with them ourselves. The four most abundant species which were causing all this destruction were Tæniocampa stabilis, Hybernia defoliaria, Oporabia diluta, and Cheimatobia brumata; but occasionally we got something better, for in a little while Mr. Bignell's cheery voice rang out with—"Hullo, here's something good! Surely not Chaonia? Yes, it is, though; and a beauty, too!" This raised our hopes and strengthened our arms, and the bushes were thwacked more vigorously than before; and presently Mr. Gatcombe exclaimed he had a lovely Ridens; and I quite agree with him, for it is a handsome larva: I afterwards took one or two crawling about the bare branches in a most forlorn manner, as they had evidently been eaten out of house and home. We continued beating and had very good luck, obtaining about three dozen each of Notodonta chaonia and Cymatophora ridens; and, in addition to these, we also captured larvæ of Thecla Quercus, Demas Coryli, Tæniocampa miniosa, Hoporina croceago, Himera pennaria, Crocallis elinguaria, and a great many other common species, and a few that were unknown to us; and returned to Plymouth in the evening, much pleased with our day's outing. I have often remembered this delightful day when I was many thousands of miles away in the Pacific.

Mr. Bignell has since informed me that larvæ were almost equally abundant in the same locality last year.

GERVASE F. MATHEW.

H.M.S. "Britannia;" Dartmouth,
November 13, 1874.

Descriptions of New Genera and Species of Parasites, belonging to the Families Proctotrupidæ and Chalcididæ, which attack Insects destructive to the Fig in India. By the late FRANCIS WALKER, Esq.

[Communicated by F. SMITH, Esq.]

Genus PSEUDISA, n., *Walker.* Fam. DRYINOIDÆ?

Body convex. Head and thorax very finely squamous. Head large, transverse, subquadrate, a little broader than the thorax; front perpendicular. Mandibles very short. Eyes large. Ocelli three, in a curved line on the vertex. Antennæ pubescent, filiform, 12-jointed, shorter than the thorax; first joint long, stout; second elongate-cyathiform; third and fourth extremely short; fifth and four following long, linear, equal; tenth, eleventh and twelfth forming a fusiform club, which is a little less than twice the length of the ninth. Prothorax large, quadrate. Mesothorax well developed; sutures of the parapsides distinct, converging hindward; scutellum with a slight longitudinal furrow. Metathorax large, tapering. Petiole slender, cylindrical, about two thirds of the length of the abdomen. Abdomen smooth, compressed, with four nearly equal segments; tip obtuse in the male, aculeiform in the female. Legs stout, setose; femora incrassated; tibiæ curved; tarsi 5-jointed; claws moderately long. Fore wings moderately broad, with a setose subcostal vein proceeding from the base to a large stigma, which emits a short branch or cubitus.

PSEUDIA SMICROIDES.

Luteous, with some black marks, which vary in number, and occasionally are wholly wanting. Wings cinereous-hyaline; subcostal vein tawny; stigma black. Length of the body 1½—3 lines. One specimen, which is much larger than the other, has a ferruginous stigma. Thirty-six specimens.

The number of specimens of this species indicate that it is especially an agent in caprification. It may deposit its eggs in some larvæ that feed within the fig, near the surface. It is very different from all genera hitherto described.

Genus ISANISA, n., *Walker.* Fam. EURYTOMIDÆ.

Body convex. Head and thorax very finely squamous. Head transverse, subquadrate, as broad as the thorax. Parts of the mouth very small. Antennæ subclavate, 11-jointed, not longer than the thorax; first joint long, slender; second cyathiform; third very minute; fourth to eighth successively decreasing in length; club fusiform, a little broader than the eighth joint, and more than twice its length. Prothorax elongate, well developed. Mesothorax with the sutures of the parapsides distinct. Petiole about one-sixth of the length of the abdomen. Abdomen smooth, slightly compressed, with four distinct segments. Oviduct springing from the base of the abdomen, and extending just beyond its tip. Fore wings moderately broad; humerus extending to a costal stigma; no ulna nor radius.

ISANISA DECATOMOIDES.

Luteous, with the abdomen more or less piceous, or with the body wholly piceous. Wings cinereous-hyaline. Fore wings with a black stigma, and with a large brown spot in the disk adjoining the stigma. Length of the body 2 lines. Eight specimens.

The mimicry of this species with regard to the preceding one is probably subservient to its habits or economy. The larvæ on which it is parasitic probably live within the fig, near the surface.

Genus AGRIANISA, n., *Walker*. Fam. SYCOPHAGOIDÆ.

Body slender, flat, smooth. Head horizontal, oblong-quadrate, more than half the length of the thorax. Eyes narrow, lateral. Ocelli three, in a triangle on the hind part of the head. Mouth setose. Mandibles curved, falcate, very long, crossing in front of the head. Antennæ clavate, 11-jointed, a little longer than the head; first joint long, stout; second clavate; third to eighth short, successively decreasing in length; club fusiform, 3-jointed, as long as the four preceding joints. Prothorax very long, tapering in front. Mesothorax with the sutures of the parapsides distinct, converging hindward; paraptera large; scutellum rather small. Metathorax long, subquadrate. Petiole extremely developed, longer than the metathorax. Abdomen oval; first segment a little shorter than the four following together. Oviduct tubuliform, as long as the first segment. Fore legs slender; posterior legs incrassated; tarsi 5-jointed; claws distinct. Fore wings narrow; ulna about one-sixth of the length of the humerus; cubitus curved, much shorter than the ulna; no stigma; radius rudimentary.

AGRIANISA MYRMECOIDES.

Luteous; wings pellucid; veins luteous. Length of the body 2—3 lines. Four specimens.

This genus differs much in structure from Agaon, Blastophaga, and Sycophaga, the other described genera of the family. It has some resemblance to the genus Bethyllus, and to the Formicidæ.

IDARNES ORIENTALIS, *Walker*.

Female.—Metallic-green, slender. Head and thorax very finely squamous. Head transverse; face perpendicular. Trophi small. Antennæ inserted in the middle of the front, 10-jointed, piceous, clavate, nearly as long as the thorax; first joint pale yellow, long, slender; second cyathiform; third to seventh transverse; club fusiform, a little broader than the seventh joint, and full twice its length. Thorax not much developed. Prothorax and metathorax less developed than the mesothorax. Abdomen smooth, lanceolate, much longer than the thorax, pale yellow beneath towards the base. Oviduct tawny, about thrice the length of the body, slightly incrassated at the tip, which is black. Legs slender, pale yellow; tarsi 5-jointed. Wings pellucid. Fore wings narrow; veins pale luteous; ulna more than half the length of the humerus; radius a little longer than the ulna; cubitus extremely short. Length of the body $\frac{3}{4}$ line. Two specimens.

The genus Idarnes hardly belongs to the Agaonidæ. The only species hitherto described is a native of the West Indies. The long ovipositor indicates that it is parasitic on larvæ that feed quite in the interior of the fig.

Genus POLANISA, *Walker*.

Female.—Body slender, smooth. Head oblong. Trophi small. Antennæ 10-jointed(?), inserted near the mouth, nearly filiform, much shorter than the thorax; first joint long, stout; second elongate-cyathiform; third and following joints elongate, linear; club composed of three transverse joints. Prothorax very long, nearly flat. Mesothorax short. Metathorax well developed. Petiole very short. Abdomen more than twice the length of the thorax, tapering to nearly half its length, compressed and aculeiform from thence to its tip. Oviduct longer than the body, emerging from the base of the abdomen; sheaths proceeding from the apex of the abdomen, slightly incrassated. Legs moderately long; femora incrassated; tibiæ slender; tarsi 5-jointed, very long and slender. Fore wings narrow; ulna much shorter than the humerus; radius and cubitus long.

POLANISA LUTEA.

Female.—Pale luteous. Antennæ tawny; first joint pale luteous. Oviduct pale luteous; sheaths black. Wings pellucid; veins pale yellow. Length of the body 1¼ line. One specimen.

This genus, with Idarnes and Micranisa, may be said to constitute one group, though it differs from them much in structure. The form of the abdomen indicates that in the act of oviposition the apical half of it is inserted as well as the sheaths of the ovipositor.

Genus MICRANISA, *Walker*.

Body rather slender. Head and thorax very finely squamous. Head transverse, broader than the thorax. Eyes very large and prominent. Trophi very small. Antennæ 10- or 11-jointed, subclavate, shorter than the thorax. Thorax not much developed, much like that of Idarnes. Petiole very short. Abdomen smooth, compressed, longer than the thorax. Oviduct slightly exserted; sheaths not more than one-sixth of the length of the abdomen. Legs slender; tarsi 5-jointed; hind femora slightly incrassated; hind tibiæ slightly curved. Fore wings narrow; ulna much shorter than the humerus; radius more than half the length of the ulna; cubitus shorter than the radius; stigma moderately large. Metallic-green, shining. Antennæ tawny. Sheaths of the oviduct black. Legs luteous; hind femora green. Wings pellucid; veins pale yellow. Length of the body 1 line. One specimen.

The short ovipositor of this genus shows that it is not parasitic on larvæ that feed within the fig.

Sherwood Forests. T. Pruni; common; Barnwell Wold. These hairstreaks seemed very fond of the bramble and privet blooms, and we found that the best way to take them was to stand near a good batch of bloom, and wait. L. Asellus; one, by beating sallow; New Forest. Z. Meliloti; not uncommon in one particular ride in Stubby Copse; New Forest. C. miniata; Barnwell Wold and New Forest. L. mesomella; New Forest. E. dolobraria; Sherwood Forest. N. zonaria; Wallasey. P. Cytisaria and M. Euphorbiata; New Forest. C. Populata; common; Huddersfield. E. lineolata; Wallasey. A. Aceris; Southampton. X. Hepatica and M. anceps; Barnwell. L. Cespitis; Sherwood Forest. X. Polyodon; one or two, very dark; Muker, North Yorkshire. A. caliginosa; New Forest. N. glareosa; in profusion; Sherwood Forest. T. opima; Wallasey. E. Fulvago, E. nigra, and M. Oxyacanthæ (dark *var.*); Sherwood Forest. H. Atriplicis and C. Scrophulariæ; Whittlesea. I also saw one specimen of C. promissa at the New Forest, but unfortunately missed it.—*S. L. Mosley; Edwinstowe, November* 16, 1874.

Vanessa Urticæ in 1874.—It would be interesting to have some account of what was observed by entomologists last year in the matter of the appearances of this insect. In the vicinity of Gravesend there were certainly a few stragglers about on the wing during April and May, but, though I examined nettles in many spots, I saw no broods of larvæ in the early summer, at the time they are usually noticeable, and from these fresh specimens ought to appear some time in June. I do not know how it may have been elsewhere, but I strongly suspect that about this part of Kent there was only one brood of V. Urticæ, the larvæ of which I saw in July: this would be consequent upon the cold and dry weather of the spring months retarding oviposition, or killing, possibly, some individuals before that could take place.—*J. R. S. Clifford.*

Scarcity of Pyrarga Egeria (Entom. vii. 129).—I much incline to your correspondent's opinion that P. Egeria has been written about in books as being much commoner in Britain than is actually the case, though in some localities it may be abundant. Of course it is possible that the species may have been more generally abundant before so wholesale a demolition of wood and forest was carried out, as has been seen during the last seventy or eighty years. And yet I scarcely know why it should be, as the larva does not feed on plants in woods; but the imago is certainly more partial to such places than others of the satyrs, excepting S. Hyperanthus. Wherever I have seen and taken P. Egeria in Middlesex, Kent, and Hertfordshire, in point of plentifulness it would be put far below such a species as A. Euphrosyne, for instance. It is a butterfly that I have very rarely seen in the act of settling on any flower.—*J. R. S. Clifford.*

Leucophasia Sinapis.—In taking L. Sinapis at the New Forest, during the fore part of July, I took one without the black tips. Is this the female, as stated in Newman's 'Butterflies;' or is it a variety, as stated by other entomologists?—*S. L. Mosley.*

[Of course the duty of replying must devolve on others. Will Mr. Doubleday, Mr. Birchall, or Mr. Weir, kindly reply? I retain the opinion I have already expressed; but am by no means confident.—*Edward Newman.*]

Note on Zygæna Filipendulæ.—I wish to bring under your notice a curious fact in relation to the time of appearance of Z. Filipendulæ. This year, in a field sheltered by woods, and in a low situation, about four miles from Winchester, I took, on June 9th, two specimens of Z. Filipendulæ in good condition, and apparently but lately emerged, in company with Z. Trifolii, which was in very bad condition. At this time Z. Filipendulæ (which is common on many of the downs in the neighbourhood of Winchester) had not there, in those higher and more exposed situations, even assumed the pupa state, nor did it begin to do so for some time after this date. The first imago I saw was on July 10th, just a month after the appearance in June. Should you think that the difference of the times of appearance was simply owing to the difference of situation; or is there any other explanation of it? I do not suppose there can be any mistake as to the identity of the earlier moth, as the two are exactly similar, as far as I can see. The yellow variety appeared again, though sparingly, on the downs, with the later insects in July; but I have not heard of its having been taken in June with the moths that appear at that time.—*Nelson M. Richardson; 4, Upper Queen's Terrace, Southampton, September 29, 1874.*

[I can offer no explanation of the discrepancy in time of appearance.—*Edward Newman.*]

Larvæ of Bombyx Pernyi.—These larvæ manifest some disposition to attack each other when in confinement,—a circumstance rather unfavourable to attempts to breed the species on a large scale, with a view to an economic use of the cocoons. The time of inactivity during the ecdyses is remarkable, in the case of some individuals, extending occasionally to seven days. It is compensated for by brisk jaw-work afterwards; for, through the latter part of their life, these larvæ seem to eat both by day and night. On the day before the cocoon is commenced they discharge from the mouth a good quantity of fluid, which is not, however, of an acrid character, but rather glutinous. It is sometimes emitted in less quantity, at an earlier period, if a larva is irritated. —*J. R. S. Clifford.*

[Notwithstanding my earnest desire to promote the science (if I may so call it) of Economic Entomology, I would venture to caution entomologists against attempting to rear the various Asiatic silkworms, which have verticillate larvæ and pyriform cocoons, on too extensive a scale: it is well to be certain that you are able to walk safely before you attempt to run. I have become cognizant of such repeated failures in the attempts to rear these silkworms that it seems needful to offer this caution. No sufficient cause for the mortality among these magnificent larvæ has yet been discovered. Such cause must not only be discovered, but removed, before extensive operations can be successful.—*Edward Newman.*]

Fidonia atomaria.—On Sunday, October the 11th, while walking through Sherwood Forest, an insect flew across the path, which I took to be Cheimatobia brumata; but as I had not taken that species here I netted it to make certain, when it proved to be a male specimen of Fidonia atomaria. Is not that unusually late for this species to be on the wing?—*S. L. Mosley; Edwinstowe, October* 20, 1874.

Eupithecia Knautiata of Gregson.—Seeing Mr. Gregson's description in the 'Entomologist' (Entom. vii. 255) of a pug new to science (E. Knautiata), it may not be out of place to remark that I have known the locality where it is taken ever since I was a schoolboy, and remember, when birds-nesting on Bullshill, that heath grew there in abundance; and at a larvæ of this insect, it used to occur in the spring as well as in the autumn,—in larger proportion at the latter season. It is not easy to obtain, as it falls from the heath if alarmed, even perhaps by the sound of a footstep. The best way is to sweep the plants with a circular net; beating them into an umbrella is not so effective, as, from the mode in which the larvæ rest, they slip by the edge of the umbrella. Of the larvæ thus taken in autumn all will not feed-up the same season, even in confinement; but few survive until the spring. They appear to eat at intervals, which renders it more difficult to manage them. The insect occurs also on Wimbledon Common, on the side near the park.—*J. R. S. Clifford.*

South London Entomological Society.—The third annual exhibition of this Society was held on Wednesday evening, December 9th, in the Girl's School-room, St. Mary's, Newington, which had been kindly lent by the managers. There was that variety of objects which always gives its charm to meetings of this kind. All orders of insects, and those of all climes, were abundantly represented. One of the most interesting cases was exhibited by Mr. Weir, the Comptroller-General of H.M. Customs. It was labelled "Mimicry," and contained specimens of butterflies which possess the marvellous power of changing colour when pursued by a certain bird that has a peculiar liking for their flavour, and contemplates them with an ardent affection akin to that with which an alderman may be supposed to regard real turtle. No sooner, however, is the insect aware of its pursuer, than it transforms itself into the similitude of another butterfly, for which the bird has no taste at all, but rather holds in abhorrence. So the accomplished harlequin of the pantomime escapes, unscathed, to practice the same clever deception over and over again. Mr. Hoey exhibited a case of larvæ admirably preserved. Mr. Wellman (the President), Mr. Champion, Mr. Tugwell, Mr. Williams, Mr. Power, and many others, were also contributors; and I must not omit Mr. Barrett, the indefatigable Secretary, to whose courtesy, unwearying assiduity, and excellent arrangement, the exhibition was mainly indebted for its success.—*Edward Newman.*

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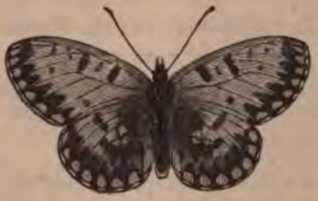

ARGYNNIS SELENE (VARIETY).

Variety of Argynnis Selene.—On the upper side the fulvous colour is paler than usual; in the fore wings the subcostal series of transverse black markings in the median cell is much altered; the first, third and fifth of these markings are absent, but their site is faintly indicated in each instance by a minute black cloud; the second and fourth are present, distinct, and nearly of the usual size and shape; the black lunules, which usually form a continuous and complete series within the hind margin, want the usual definition, and are fused with, and united to, the nearly circular black spots, which, in normal specimens, form a transverse series parallel to these lunules, but nearer the base of the wing; the other black markings are absent; the submarginal series of fulvous spots is regular and conspicuous; each spot is large and distinct. In the hind wings a very similar change of markings has taken place, as shown in Mr. Willis's admirable figure. The under side is remarkable, in having nearly all the markings confused; in the hind wings the silvered districts have overflowed, and have more or less tinged the whole of the wing have observed the same in the case of Cl. albipes and Cl. unciuatus.

The length of time passed by the insect within the cocoon depends upon the time of year in which the larva spins up; when this takes place in the spring or summer the period of inclusion is not longer than a fortnight or three weeks; but when the larva spins up in September the imago does not appear until the following spring. One larva, which spun up on the 23rd of May, produced the imago on the 14th of June; and from full-grown larvæ, taken on the 3rd of August, I obtained three imagos by the middle of the month, all males.

On cutting open one of these cocoons—a little before the time the imago is ready to appear, that is to say on the sixteenth or seventeenth day—the pupa is found to be fully, or very nearly fully, coloured, having the appearance of our fig. 5, which represents a pupa so nearly ready to come out that it begins to move about the antennæ and the palpi, and the last joints of the tarsi. When this drawing was made the insect was already black, with obscure white legs, and a gray stripe on the side, being the membrane between the dorsal and ventral plates. Brullé found the imagos develope in thirteen days, during the month of July.

The perfect insects (see figs. 6 and 7) are black; the legs being partly obscurely white, or pale ochreous. The males are four or five millemetres long; the females from five to seven millemetres. Head nearly as broad as the thorax, shining black, scantily clothed with very short gray hairs; in both sexes the palpi are obscure white. Thorax black, with scanty gray pubescence; sometimes, in the female, with a tint of very dark sepia. Cenchri obscure white. Abdomen shining black. Legs shining black as far as the knee, and from there dirty white, or, in some males, pale ochre-yellow; the last three joints of the posterior tarsi, sometimes all, together with the point of the tibiæ, sordid brown. The wings, for more than the half of their extent from the base, are smoke-coloured, with brown nervures. Costa obscure white, or pale reddish brown. Stigma of the same colour, or faded brown. The antennæ are a little longer than the head and thorax, black, and of a very peculiar form in the male (Hartig's figure, plate 2, f. 20, is not quite exact; see our fig. 8, male). The first two joints are short and thick, annular; on the under side of the third is a small hairy knob, and on the upper side, at the apex, a branching process covered with hairs, like that of a stag's horn, and half as long again as the joint itself; similar processes are found on the fourth, fifth, and sixth joints, decreasing successively in size, so that that on the sixth joint only just projects from the apex; the seventh joint is, at the end, somewhat more pointed above than below; the eighth is simply cylindrical; and the ninth awl-shaped. Both the knob and the branches are wanting in the female (fig. 8, female); but the third, fourth, fifth, and sometimes the sixth, joints are somewhat expanded above: they terminate obliquely at the apex, and have a fine pointed spine on the projecting upper side.

The saw and ovipositor of the female are very similar to those of Cladius albipes, but are a little broader, and the points with which the former is armed are finer and sharper. Cladius difformis has been taken with us in various localities, and will probably be found to be common wherever roses are cultivated.

Additions to the List of Macro-Lepidoptera inhabiting Guernsey and Sark. By W. A. Luff, Esq.

(Continued from vol. vii. p. 42.)

I beg to offer the enclosed additions to my former lists of Guernsey insects for publication in the 'Entomologist.' The following were, when not stated to the contrary, captured during 1874.

Lampides Bœtica.—A single specimen was captured by Miss L. Renouf in her garden, St. Peter Port, Guernsey, at the end of August, 1872. This lady also captured eight specimens at the same place in the autumn of 1859.

Sphinx Convolvuli.—Several have occurred in Sark.

Deilephila Euphorbiæ.—I am sorry I cannot now record this as a Guernsey insect. Many years ago the larvæ were to be found in abundance on the sea-spurge growing near the coast of L'Ancresse Bay, but greedy collectors have long since exterminated the species.

Zygæna Trifolii.—It is this insect and not Z. Loniceræ, as mentioned in my previous list (Entom. vi. 352) which is so abundant on the Guernsey coast; it is also very abundant in Sark and Herm. The imagos usually make their appearance towards the end of June; but on visiting Herm, on July 30th, I was surprised to find a great number of cocoons, from which the perfect insect had not yet emerged. The moths kept coming out for a fortnight after this date. On August 11th one emerged, still bearing the head of the larva: this is a very rare form of monstrosity (see Entom. v. 268). I think Z. Loniceræ is absent from Guernsey and Sark.

[Great care is necessary in deciding between the two species here mentioned. I willingly admit that I am totally unable to differentiate them in print; moreover I have almost invariably found that the specimens so kindly sent me by correspondents in the north as one species, when submitted to the highest authority in the south are returned to me as the other. Can any reader of the 'Entomologist' give any information as to the pupation of Trifolii? Have Mr. Luff's cocoons been submitted to a critical examination by Mr. Birchall, Mr. Doubleday, or Mr. Weir? I should feel really gratified, not only on my own account, but on that of those who so kindly favour me with their company on Friday evenings, if entomologists would send either specimens or information concerning the pupa or cocoon of Trifolii. It may seem a strange confession, but I am in a state of positive ignorance whether this species spins a shuttle-shaped cocoon on the culms of grasses, or an oval cocoon low down in the herbage, or absolutely enters the earth to undergo its transformation under ground. In this case, as in that of the almost equally common insect, which I have described under the name of Davisellus, and which possessed at least three prior names on the Continent, I feel the humiliation of exhibiting such gross ignorance. It is no excuse that this ignorance is shared by my fellow-countrymen. In both cases it is totally inexcusable; and the plea that others are equally ignorant is, to say the least, puerile and unavailable.—*Edward Newman.*]

Sesia Ichneumoniformis.—I took one at rest, July 6th, at the top of the cliff, near Doyle's Monument, Guernsey.

Nola cucullatella.—Not uncommon in Guernsey; end of June.

Nudaria mundana.—Miss Renouf informs me that she has found the larvæ, near Bordeaux Harbour, Guernsey, feeding upon lichens growing on stone walls.

Lithosia rubricollis.—I have taken several specimens in Sark. The larvæ are abundant in some four or five localities in Guernsey: they are found full grown at the end of October, in every instance feeding on lichens and mosses growing on elm trees, and on the walls near these trees. Hundreds of the perfect insect were resting on the trees, walls, &c., on June 10th, and fresh specimens were to be found on July 5th.

Lithosia quadra.—A lady collector had two larvæ brought her, from which she succeeded in breeding one moth. The larvæ were found under some old lichen-covered apple-trees in a garden, near Moulin Huet Bay, Guernsey.

Liparis chrysorrhœa.—Rare in Guernsey.

Cleora lichenaria.—One specimen, bred by Mrs. Boley, from larvæ taken in Guernsey.

Timandra amataria.—Not uncommon in Guernsey and Sark.

Hybernia progemmaria.—I took one specimen at sallow bloom, on March 20th, in Guernsey.

Cheimatobia brumata.—Occurs in Guernsey, though not commonly.

Eupithecia linariata.—The larvæ not uncommon in the flowers of Linaria vulgaris. Guernsey.

E. exiguata.—Common in Guernsey and Sark.

E. rectangulata.—Took several in Guernsey.

Thera juniperata.—One specimen taken in Guernsey.

Melanippe rivata.—Took two, near Fermain Bay, Guernsey, in July.

Eubolia peribolata.—Mr. Doubleday informs me that the insect, named as Anaitis præformata (Entom. vi. 357), is the Eubolia peribolata of Hübner. The true Anaitis præformata is a much larger and altogether different insect. Peribolata is on the wing during September, and flies amongst furze bushes in the daytime; it also comes to sugar and ivy blossom. The eggs are hatched in the autumn, and the larvæ feed upon furze.

Calamia lutosa.—First noticed a specimen crawling up a reed-stem, at the Grande Mare, Vazon, whilst searching for plants, on October 10th: it had just emerged from the chrysalis, and its wings were yet limp. About a week later I searched the reeds at night with a lantern, and secured eight specimens; most of these were rather worn.

Gortyna flavago.—The larvæ are to be found in thistle-stems. Guernsey.

Hydræcia micacea.—Mrs. Boley has taken one specimen. Guernsey.

Caradrina blanda.—Common at the flowers of wild mint. Fermain Bay, Guernsey; end of August.

Agrotis lunigera.—Several taken in Sark at sugar; end of August.

A. porphyrea.—Common on heather bloom. Guernsey.

Noctua Rubi.—Common at sugar in the autumn. Guernsey.

Tæniocampa rubricosa.—Not uncommon at sallow bloom. Guernsey.

Dianthœcia conspersa.—Miss Renouf has taken this insect in Guernsey; and Mr. Doubleday informs me he took specimens in Sark more than twenty years ago.

Epunda nigra.—This has been met with at ivy bloom rather commonly in Sark.

Trigonophora empyrea.—Several specimens taken at ivy bloom, in Sark, during September.

Heliothis peltiger.—Miss Renouf has frequently bred this insect; the larvæ were found feeding on marigold in her garden.

H. armiger.—One specimen taken in Sark at sugar.

Catocala nupta.—One specimen taken in Sark.

W. A. LUFF.

Mansell Street, Guernsey,
December 17, 1874.

Notes on the Arachnida. By W. SIDNEY RANDALL, Esq.

THE following observations, from my note-book for September last, on the habits of certain Arachnida, chiefly with reference to some of the different methods employed by them to secure their prey, may be interesting, not only to Arachnologists, but also to your general readers.

I noticed that a number of spiders had taken up their abode on the panes of my workshop window, just above my lathe, so that I had very good opportunities for observing them, especially as there was no one likely to interfere with their webs by the use of dusting-brush or otherwise.

Sept. 8th.—One of the Epëiræ having constructed a web on a lower pane, I determined to make some experiments with it: accordingly, by way of commencement, I placed a dead house-fly, just killed for the purpose, in the upper part of the web, close to the spider, which, however, took no notice of it during the whole afternoon. In the evening I tried once more, this time placing a living fly in the centre of the web, but with the same result, although the fly in its struggles shook every portion of the net. Thinking that my presence had something to do with the cause of such apathy, I turned down the gas to await the result. In a few seconds I heard the sound of the fly's wings, so I turned up the light at once, but immediately the spider made off, leaving the fly to continue its struggles again. Seeing the effect either of the light or of my presence, I again lowered the gas; but, after waiting some time without any apparent result, I raised the light, and to my surprise saw the spider feeding on the dead fly, which had been neglected during the greater part of the day; but it ran back to its hole as before.

Sept. 13th.—During the last few days the Epëira has refused to eat or take any notice whatever of a fly, so I turned it out to see whether it would return or not to its abode, which I preserved intact. But it never has returned, and the web remains unoccupied. Then I turned my attention to a small colony on the upper panes of the window, and finding a very small straw-coloured spider, in a large irregular web, I tested its capabilities by putting a living fly in the middle of the meshes, with the following result: almost before my hand had left the fly the little spider ran down, and with its falces seized its prey's fore leg by the foot, and, fixing itself firmly, held on until the struggles of the fly had ceased so far as to enable it to complete the capture by the additional security of a few threads. My next experiment, with another very small spider of a dirty brown colour, was more interesting. It had a very small web in the lower corner of a pane in the middle of the window, and with some difficulty I entangled the legs of a fly in it, but its weight and struggles caused it to fall over the ledge, where it hung suspended by the fore legs. I left it alone to see what steps the spider would take to recover its prey, and the result was very interesting, the more so because to get at a fly in such a position again would be very difficult, if not almost impossible. The spider ran down the thread attached to the fly, and proceeded to strengthen it by others, which it fastened high up in the web; after this it went down the back of the fly and fixed a thread to the extremity of each wing, taking them up as before. When this was accomplished two more threads were attached to the hind legs, and, lo, the preparations were complete; but the most difficult part of the task remained to be accomplished, for the fly, although securely bound, was some distance below the web. The little spider was, however, equal to the occasion: it drew each thread tighter, and slowly hauled up the fly, not only to the ledge, but over it, and into the web. A very clever feat, when the great disparity in size between the spider and its prey is taken into consideration.

Before leaving my workshop I placed another fly in the web of the little straw-coloured spider, mentioned above. This gave rise to an incident which was both amusing and instructive. The little spider ran down and seized its victim by the leg, as before, and would no doubt have succeeded in effecting another capture, but for a slight interruption, that might have been attended with serious results. A much larger spider, inhabiting the corner of the window two panes removed, had evidently seen the struggle going on, for it suddenly darted from its hole, and, rapidly clearing the two intervening panes, made for the fly, which it promptly seized. This put an end to the fly's struggles for life, but commenced a trial of strength for its possession. The small spider had never relaxed its tenacious grip,—not even when the larger one had appeared; and it stoutly resisted all efforts to deprive it of its prey. Instead of attempting to carry off the fly bodily, the large spider attached a thread to it, and then tried to drag it away from the little one, but without avail. After watching this contest for some little time I was surprised to see the invader suddenly relax its efforts, and retreat as rapidly as it had come, leaving the little one to secure its prey unmolested.

I then offered two flies in succession to the disappointed spider, both of which it seized most eagerly out of my hand;

rather an unusual proceeding, at least with the majority of the Arachnida, for, as a rule, I find them very shy, especially the larger specimens.

Sept. 14*th.*—During the night a change had taken place among the spiders, and I found that the plucky little straw-coloured fellow had been either turned out or devoured by a new comer. This was a very much larger specimen, and seemed very shy, making off as soon as my hand came near the web; it also refused all my offers of food, and allowed more than one fly to get away without even attempting to capture them. I next tried to induce the spider in the corner to seize another fly, but without success; although the day before it had been so eager to take them, even from my hand. From this it would appear that certain of the Arachnida, after their appetite is satisfied, are disinclined to make any efforts to secure their prey, until hunger compels them to do so. But that it is not the case with all may be shown by the readiness of some of the Epëiræ to lay in a large stock of provisions. On one occasion a specimen of Epëira Diadema took from my hand six flies, one after the other, winding them all up, and securing them in the usual manner to the web. This reminds me of an interesting fact mentioned to me lately by a friend of mine, who is a close observer of spiders and their habits. Certain spiders, if they kill a number of flies that they cannot readily dispose of at once, will devour them one by one, as they require food, but keeping to the order in which they were killed; the fly captured first being eaten before any of the others, and so on in order.

Sept. 25*th.*—I noticed that numbers of ladybirds (Coccinellæ) had made their appearance, most of them being clustered in little groups in the corners of the window panes. The day before not one of them was visible. I placed one in the web of a large spider, located under the gas-pipe, to see what would be the result. The spider ran out at once, but cautiously approached the little red insect, and then made a sort of peck at it with its falces, drawing back at once: this was repeated two or three times; then the spider slowly put forward one leg and touched the Coccinella on the back, but immediately withdrew it, and with that sudden erratic movement so noticeable in the Arachnida, turned round and bolted into its hole again. The Coccinella, left to itself, managed in a very short time to extricate its legs from the meshes and walk out of the web.

Before concluding this paper I should like to draw attention to a question suggested to me by Mr. W. R. Hughes, of Handsworth, as to whether some of the Arachnida are not nocturnal in their feeding. The fact I have mentioned of a spider refusing to touch its prey while a light was burning, but seizing it the moment that light was extinguished, led Mr. Hughes, when I told him of it, to draw this conclusion, which is, I think, worthy of consideration. I do not remember to have met with a work in which such a question is even noticed; and Kirby and Spence, in Letter 13, which is chiefly devoted to spiders, have no remarks on the subject. But it is, I believe, a well-known fact that the Arachnida very often construct their webs during the night.

W. SIDNEY RANDALL.

Handsworth Rectory, January 12, 1875.

Entomological Notes, Captures, &c.

Epping Forest.—In your article on Epping Forest (Entom. viii. p. 3) you state that "the Haggerston Entomological Society were the only entomologists in Britain who entered the slightest protest against the hateful enclosures." I beg to call attention to the 'Entomologist' for 1867, Vol. iii., Nos. 37, 38, where you acknowledge a contribution, for the benefit of the imprisoned wood-cutters, from the Eastern Entomological Society, now known as the East London Entomological and Botanical Society. We have at all times done our best to resist the enclosures. We have petitioned Parliament, which petition was most respectfully listened to by the House of Commons. I also send you the following copy of a letter we received from Professor Fawcett, M.P., who presented it:—"I will most gladly present your petition. I most cordially endorse all the opinions you express with regard to the importance to the working classes of preserving Epping Forest. It ought to be looked upon as a great social and educational question. I think the working men would do well to make it a test-question at the next election. I would vote for no man, whatever his political opinions might be, if he were not prepared to do everything in his power to resist those who have striven so hard to deprive the poor of those open spaces, where they can not only obtain health, but where they can enjoy the highest kind of recreation. Yours very truly,—HENRY FAWCETT; 42, *Bessborough Gardens, S.W., March* 16, 1872."—*D. Pratt, Secretary;* 333, *Mile End Road, E., January* 18, 1875.

[It is always unpleasant to have incurred the necessity of such a correction as this; but the unpleasantness in the present instance is abundantly compensated by the gratification I feel in performing an act of obvious justice in placing the Eastern Entomological Society in its right position. It is also with feelings of sincere admiration that I have read, and now publish, Professor Fawcett's kind and characteristic letter.—*Edward Newman.*]

Leucophasia Sinapis (Entom. viii. 21).—My friend Edward Newman, having requested me to reply to Mr. Mosley's question about this species, I may say that the female is generally rather smaller than the male; the anterior wings are more rounded at the apex, and the dusky spot is obsolete or altogether wanting. In the northern parts of Europe the individuals of the autumnal brood only differ from the vernal ones in being rather smaller, but in the southern parts of Europe they differ so much from the spring brood that they were formerly considered by many entomologists to be a distinct species. The ground colour of the wings is pure white, and the male has a circular black spot at the apex of the anterior wings, which does not extend to the margin; the under surface of all the wings is pure white, but in some individuals there are a few very faint marks. This variety occurs in the New Forest, and also in Tilgate Forest. I have never seen a British female, but I have Sicilian specimens, given to me by M. Bellier de la Chavignerie, which are pure white on both surfaces, without any markings.—*Henry Doubleday; Epping, January* 14, 1875.

Cucullia Scrophulariæ (Entom. viii. 19).—Mr. Mosley states that he took this species at Whittlesea. It is extremely rare in this country, and I only know one person who has met with the larvæ, which feed on Scrophularia nodosa. Those found upon Scrophularia aquatica are S. Verbasci. Is

Mr. Mosley quite sure that his insect is the true C. Scrophulariæ, which closely resembles C. Lychnitis, but is very different from C. Verbasci?—*Henry Doubleday; Epping, January* 14, 1875.

Arctia Isabella.—An American friend sent me a lot of Arctia Isabella larvæ over from Illinois. They seem to have borne their journey remarkably well, for they were alive and in pretty good health on arrival, after a journey of about a fortnight through the post.—*J. C. Wassermann.*

Note on Eupithecia Knautiata, mihi.—

"I understand thy kisses, and thou mine; and that's a feeling disputation."—SHAKESPEARE.

At page 290, vol. vii., of the 'Entomologist,' Mr. Crewe says he has read with "considerable astonishment" my note on an Eupithecia I have called Knautiata, and is wholly at a loss to know by what process of reasoning I have arrived at my conclusions; and that he has had the Bolton insect from the egg up to the moth, and, after careful consideration, he is convinced that it is nothing but E. minutata.

In reply to all this, first, I ask him to re-read my note without any "considerable astonishment," and then compare my description of its larva with his own description of the larva of E. minutata, as copied into Newman's beautiful 'British Moths,' p. 137, by his permission, and if he is not considerably astonished at the great difference in the descriptions, and if he can then make them identical, I shall read *his* report with *considerable surprise;* secondly, I arrived at my conclusions, as I usually do in natural history, from facts, not *reasonings.* I am not a speculative naturalist, and in this case I personally ascertained that this larva fed on Knautia arvensis alone, at Bolton, and of course knew, as well as Mr. Crewe, that E. minutata fed on heath. I then went ninety miles (to North Lancashire), where I knew Knautia arvensis grew on a fell amongst heather, failing to find a pug larva on the Knautia, where plenty of Minutata were feeding on the ling. I went pike fishing, on Easthwaite Lake, next day; I walked some twenty-five miles over the fells to Moss End, Witherslack, where I knew plenty of Knautia grew on the moss amongst fine heather;—no results. Proceeding to Grange-in-Cartmel I got the last train for the South, and got home after midnight. Not satisfied, I went to

Formby Moss, where I knew this plant grew in profusion on one ride (though it does not appear in the 'Liverpool Flora,' recently issued): here I examined every flower of the Knautia without seeing a pug larva upon them; and if I did not base my conclusions on facts positive or negative, it may ease Mr. Crewe's mind to think other of your readers may draw different conclusions from the following "process of reasoning:"—Knautiata feeds on Knautia arvensis at Bull Hill, where no heath grows, and Minutata feeds on heath at Hawkshead, at Witherslack, and at Formby Moss, where plenty of K. arvensis grows amongst the heath, but never once touches the Bull Hill food of Knautiata, when it can get heather, otherwise the Knautia feeder is a new species; and since Minutata has a pink larva, and this has not, so I assert E. Knautiata is distinct from Minutata; or, reasoning another way (but, as I said before, I am no *reasoner*). Mr. Crewe says of Minutata larva (see 'Zoologist,' p. 8174):—

1. "It is stout."
2. "It is thick."
3. "It is stumpy."
4. "Its ground colour is dull pink, or flesh-tint."
5. It has a series of dusky Y-shaped dorsal spots.
6. Each dorsal segment (whatever that may mean) is studded with four yellowish tubercles.
7. The spiracular line is yellowish.
8. The head is dusky olive.
9. The belly is dusky, or pinkish white.
10. It feeds upon the flowers of the common ling (Calluna vulgaris).

And, as I am quite willing to let my species Knautiata stand or fall, on the description I have published (Entom. vii. p. 256), against Mr. Crewe's description of the larva of E. minutata, as given in Newman's 'British Moths' (p. 137), let us see how they agree, and leave your readers to decide between us. I say of E. Knautiata larva:—

1st. When young, slender, cylindrical. Not "short."

2nd. Rather stout, attenuate to both extremities. Not "thick."

3rd. Much appressed in the central segments. Not "stumpy."

4th. Varies from French-white, pale straw-colour, ashy gray, light pea-green, faint purplish and peachy grounds, and dirty dim colours of various shades, &c. Not "pink, or flesh-tint."

5th. On the central segments there is a well-defined spade-shaped mark, &c. Not a "Y-shaped mark."

6th. I fail to find that each dorsal segment has four yellowish tubercles.

7th. Spiracular line wavy, spiracles dark, with a distinct light ring round each. Not "yellowish."

8th. Head very small, horn-like; corslet small, striate, &c.

9th. Under side light, inclined to ashy green. Not "pinkish white."

10th. It feeds exclusively on Knautia arvensis. Not on "ling."

Does Mr. Crewe like the reasons, now some of them are put before him? But, as I said before, I am not a speculative naturalist, and have no particular process of reasoning: I am guided by facts alone; hence I am so little understood by people who sit at home and speculate, whilst I am burning oil on the moss, the moor, or upon the mountain; or they at best go out for a few hours in the sunshine, twiddling into an umbrella, or sit twaddling about the dreadful havoc ichneumons make with their larvæ; whereas, I take it, the death-rate amongst the few larvæ they can hope to beat off in the day-time is mostly caused by the injury they receive as they fall, or they are the sickly larvæ which could not hide away until feeding time.

The tone of the second note (Entom. vii. 291) is such as to preclude a lengthened reply from me. I will, however, show how utterly its logic fails when applied to both notes. In one case Mr. Crewe makes a Knautia-feeding species a heath-eater, though its food belongs to the natural order Dipsaceæ, —three or four natural orders removed from the natural order "Ericaceæ," on which his heath-feeder lives,—*yet he doubts the possibility* of the other species eating the very next plant in the same genus to the one he, and I, have been told it feeds upon on the Continent. I recently saw a cabinet, twenty miles from here, which requires more drawers to contain the pugs therein than would accommodate all Mr. Crewe's British Geometrinæ, pugs included; and yet, forsooth, we, who breed pugs by the hundred,—shall I, for accuracy, say by the thousand, and keep from forty to fifty as our series in our cabinets,—are not to know a species when we see it, but are to send "positive, ocular demonstrative proof" to people who commenced a study where we almost left off. Grant this claim, and by a parity of reasoning I must have "positive, ocular demonstrative proof" that Mr. Crewe went out in the carriage of his friend, and beat *half a mile* of a *rare* plant, where it was *abundant, unsuccessfully!* Where, on his own rule, is the "POSITIVE, OCULAR DEMONSTRATIVE PROOF" that he was ever there at all? He has my word for what I said,—*he does not believe me;* I have his word,—*am I to believe him?* But I am no logician. Mr. Crewe may, however, sit on which horn he likes,—only on to one he must go; or there is an end to all papers on Natural History,—and so ends our "feeling disputation."—*C. S. Gregson; Rose Bank, Fletcher Grove, Edge Lane, Liverpool, December* 18, 1874.

Emmelesia unifasciata at West Wickham.—I took a single specimen of E. unifasciata at light, at West Wickham, on the 14th of August last (1874). This is, I believe, a new locality for this scarce species, though it has been before recorded from Forest Hill, and lately by Mr. Marshall (Entom. vii. 209) from Cheltenham.—*W. A. Forbes;* 35, *S. Castle Street, Edinburgh.*

Nonagria brevilinea, Phycis Davisellus, and Grapholita grandævana.—A short time since I forwarded specimens of Nonagria brevilinea, *Fenn*, Phycis Davisellus, *Newman*, and the supposed Grapholita grandævana of Zeller, to my friend Dr. Staudinger, and have received his remarks upon them. He says:—"*Nonagria brevilinea*, Fenn.—I never saw it before; it is a very good species, very distinct from all others known. *Phycis Davisellus*, Newman.—This species has now been described four times: it is, without any doubt, Nephopteryx genistella, *Duponchel* (vol. x. fig. 278). Herrich-Schæffer was the second who described and figured it under the name of Ulicella (Pyr. fig. 149), from two males, found by the late Julius Lederer in Andalusia: the originals are now in my collection. Then I reared a single specimen in Andalusia from Ulex, and, as at that time I did not know much about the Micro-Lepidoptera, I sent it to Professor Zeller, who said that it might be a new species; so I described it the third time as Albilineella (Stett. e. Z. 1859, p. 223); and Mr. Newman has described it a fourth time as Davisellus. The English specimens are a little darker than the southern ones. I have also received it from Montpellier. *Grapholita grandævana*, Zeller.—Doubtless this species, but not a reared specimen. A friend of mine reared it on the sea-coast, near Stettin, in great numbers. The larva feeds on Tussilago, and makes very long, curious tubes in the sand."—*Henry Doubleday; Epping, January* 8, 1875.

[I confess to a feeling of intense humiliation at receiving this intelligence. Where are our Micro-lepidopterists? The specimens of this insect were posted from one to another in the hope of proving that it had been previously described, and thus superseding my name of Davisellus; but, alas, all this energy, all this outlay of postage and packing, culminated in a ludicrous attempt to show that the species was Albariellus. My own ignorance was to be expected: I never professed any knowledge of the tribe; and so sent it on its travels immediately I received it, begging for a name. With how little success the result has shown.—*Edward Newman.*]

Heliothis Scutosa.—Having received several lists with Scutosa crossed out, I may as well say, before everyone dies out that can give evidence about the captures of Scutosa, that four or five such persons, one of the captors included, still live; and the gentleman that took three specimens, at least (and it is singular), lives now at Epping. Well, the history of Scutosa I will now narrate, and let sceptics read:—In 1834 or 1835 (not sure) the gentleman that now lives at Epping, Mr. R. R. Rothwell, was at Green Row Academy, on the Solway (now the port of Silloth). He was fond of collecting; and at the midsummer holidays he brought home his boxes to Carlisle, and in them were three Scutosa (certain): one my father sent—through Mr. Cooper, now living—to Mr. Heysham to name; he kept it, and thought it was sent to Mr. Curtis. Well, at his death, I got this specimen back; and the Rev. H. Burney has it now. A second specimen my father sent to Mr. Edleston, and it is still in his collection; now in Mr. Sidebotham's hands. There was a specimen left in Mr. Rothwell's collection, which got destroyed after he left home to go abroad. Another specimen, which Mr. Heysham noted as taken on the banks of the Calden, twenty miles away from Silloth, may also be noted; and another still was taken by my father to the late Mr. Heysham to name; but many insects never came back again,—I can trace four or five specimens. I may further add my father and brother, who went back with Mr. Rothwell to see if any more could be got, still live, and the writer was there, too, and saw the last specimen carried away with the wind and lost to view. Now here we have a vast deal more evidence than many species which pass muster on the faith of a specimen or two.—*J. B. Hodgkinson; 15, Spring Bank, Preston, October* 10, 1874.

Answer to Correspondent.

James Ashby.—Beetles in Tea.—I send herewith some beetles and two or three maggots found in some chests of tea. The entire parcel of a hundred chests, or so, is more or less affected. Although the specimens I send you are dead, there are plenty of living ones to be found. The tea has been in the bonded warehouse three or four years. Do you think the insects have got into the tea since its arrival in this country, or were they imported with it? The tea is very common, in fact, rubbish, which no respectable dealer would buy, and it will probably be destroyed or exported; therefore the lovers of "the cup that cheers, but does not inebriate," need not be in fear of having a decoction of beetles.

[These beetles are perfectly familiar to entomologists, and are generally known by the name of Niptus hololeucus. In the year 1838 I found them abundantly in an old cupboard, at Deptford, in company with sundry and divers boots and shoes that had been laid aside as leaky, and therefore useless. Not knowing the insect, and being desirous of obtaining its name, I took a sample set to the late J. F. Stephens, then the highest authority on beetles, and a gentleman who devoted every Wednesday evening to the enlightenment of his less-informed brethren of the net and beating-stick. Finding it unknown to Mr. Stephens I wrote a paper on my discovery, and read the same at a meeting of the Entomological Club, held at the late Mr. Walton's, calling my new insect Ptinus holosericeus. This paper was never published, and had it been so the proposed name must have given way to the prior name of Hololeucus, proposed by M. Falderman. In 1839 the insect appeared in the Appendix to Stephens' 'Manual of British Coleoptera,' p. 433, as under:—

"1581 b. Ptinus hololeucus, *Falderman ?*—Pale ochreous-red; densely clothed throughout with a pale ochreous, silky down. (L. 1½—2 lines.) Houses, London: whitethorn hedge, Ryde, 6, but probably introduced."

For further information I am indebted to my kind friend Dr. Power, who now occupies the same position in Coleopterology which Mr. Stephens occupied in 1839, when his Manual was published. The insects in tea differ in some respects from Dr. Power's ample series of Niptus hololeucus, by which name the insect is now known, and under which it appears in Mr. Crotch's '*Catalogue of British Coleoptera:*' it is rather larger, and the punctures on the elytra are rather more distinct, especially where the ochreous pubescence is rubbed off, and the insect has become smooth and shining in every part. Dr. Power cannot agree to consider it on this account a second species of Niptus, although he thinks some of our modern entomologists would incline to do so, and there is no other Niptus in the European list except Niptus Gonospermi, which is entirely different. If this tea beetle prove really a different species it is still without a name, and of course requires one. To this information Dr. Power adds the following:—"It so happens that I have had a little experience in this creature. Some years ago my friend Dr. Dupré gave me some meal, which had been sent him to analyse, and it contained an immense number of the insect. The meal was in a bottle with a glass stopper, which I never took out. The insects died, but the next year the bottle contained about fifty similar ones, produced from larvæ identical with those which you have sent me in the tea: each formed a sort of cocoon, and in that underwent its transformations. The third year there were about ten or a dozen, and the fourth year none: they had disappeared altogether. I have no doubt that if the bottle had been opened, so as to admit air, the breed might have been continued." The beetle is now very common in all our houses. It is said to have been introduced into England from Persia *viâ* Turkey. It is as omnivorous as Dermestes lardarius, feeding on any vegetable substance,—as tea, meal, linen. I may state—

1. That the grub, or larva, and the beetle, are identical, the latter being the mature or perfect state.

2. That the name is Niptus hololeucus; the slight difference between those found in tea and those in meal, or other substances, may possibly arise from a difference of food.

3. It is certainly an imported insect, scarcely known in Britain before 1839, but now thoroughly naturalised.

There is no evidence to show whether it exists in China, so as to get into the tea at its first source; but seeing that it thrives on tea, is already abundant in Britain, and that British individuals have enjoyed the opportunity of founding colonies in the tea-chests that have "been three or four years in bonded warehouses," it seems highly probable that they have done so. Were the beetle known in China as a feeder on tea, or even as a native, it might perhaps fairly be inferred that it originally reached us from that country; but that is not the case.—*Edward Newman.*]

Extracts from the Proceedings of the Entomological Society of London.

November 2, 1874.—Sir Sidney Smith Saunders, C.M.G., President, in the chair.

Deiopëia pulchella.—Mr. Stevens exhibited three specimens of D. pulchella, taken at Arundel and Deal, and a Noctua from Dover that he had not been able to identify. Prof. Westwood remarked that the late Lieut-Gen. Sir J. B. Hearsey had frequently observed D. pulchella to be very destructive in gardens in different parts of India.

Herrich-Schæffer's Collection.—Prof. Westwood remarked that he had recently seen the collection of Lepidoptera of Herrich-Schæffer, now in possession of his son Dr. Schæffer, of Ratisbon, but that, unfortunately, they had been so much neglected that the greater part were in the worst condition. The collection of Tortrices, formed by the late Herr Fischer v. Röslerstamm, were, however, still in good preservation.

Rare British Lepidoptera.—Mr. Bird exhibited specimens of Sesia culiciformis; bred from pupæ obtained at Rowhill Wood, near Bexley. The usual type with the *red* band across the body is not uncommon, but those exhibited had the band yellow. Mr. Bird had bred several this and last year, and in both years the proportion was almost exactly the same, namely, one yellow to every twenty-five with the red band. Limacodes asellus, with pupa-case; bred (for the first time) from pupæ found at Marlow, Bucks, attached to the leaves of the beech. Nola albulalis; taken near London. Nonagria brevilinea; taken at Horning Fen, Norfolk. Two of the specimens exhibited were without the characteristic short line at the base of the wing. Pterophorus rhododactylus, with pupa-case; bred. Mr. Weir exhibited specimens of Mantis religiosa, with two of the egg-cases; found by himself at Meran, in the Tyrol, in September last.

Printers' Wooden Letters Perforated.—Mr. M'Lachlan exhibited a printer's wooden letter, such as is used for printing posting-bills, perforated by a species of Anobium, and he was informed that the insect was causing serious damage to the printer's stock of these letters. The wood was believed to be pear-tree. He had recommended soaking the letters in a mixture of carbolic acid and water.

[This is a very common occurrence, and an evil very difficult to remove. It is not confined to letters, but extends to, and is infinitely more injurious to, frames and cases (I use printer's phraseology). The genera Ptinus, Ptilinus, Niptus, Anobium, Gibbium, and Mezium,—in other words, beetles of the families Ptinidæ and Anobidæ,—seem to confine their attention to old and well-seasoned wood, and to require strong measures, whether for prevention or cure. Kyanising is effectual for both purposes, but impossible to apply in small doses; boiling, spirits of turpentine, camphine, and benzole, are effectual for the latter; carbolic acid is useless. I have previously remarked that longicorns (Cerambycidæ) attack only living and growing wood, and this also may possibly be the case with Buprestidæ. Lucanus, Dorcus, Sinodendron (Lucanidæ), devour wood in a dying state, and hasten its decay. Cetonia, Gnorimus, and Trichius (Cetonidæ), eat dead, actually rotten, wood. Of course in all these instances I allude to those beetles in the larval condition. For the Cerambycidæ no cure or preventive has yet been found. The Lucanidæ and Cetoniadæ do us little or, perhaps, no injury; and therefore a remedy is not required. —*Edward Newman.*]

Pselaphidæ and Scydmænidæ from Australia.—Dr. Sharp communicated "Descriptions of New Genera and Species of Pselaphidæ and Scydmænidæ from Australia and New Zealand." The paper contained descriptions of forty-four new species, three of them belonging to the family Scydmænidæ. Of the forty-one species of Pselaphidæ, twenty-six were from Australia and fifteen from New Zealand, the latter being the first specimens of Pselaphidæ that had, as yet, been obtained from New Zealand. He believed that the islands would prove to be rich in Pselaphidæ, and alluded to the great scientific importance of an accurate knowledge of the New Zealand fauna, and to the special importance of gaining as rapidly as possible a knowledge of the existing Coleoptera, as such knowledge would contribute largely to the solution of many important scientific questions; and, as a large proportion of the species were confined to small areas of distribution, there was great reason to fear they would be easily exterminated, and thus the fauna itself would disappear with the changes caused by colonization and the cultivation of the soil.

Protective Colouring in Pupa.—Mr. Darwin communicated a paper containing remarks by Mrs. Barber, of Griqualand, South Africa, on the colour of the pupa of Papilio Nireus, in connection with the surroundings of its place of attachment, the pupa appearing to assume a protective resemblance to the surface to which it is fixed, and suggesting that some photographic influence might be at work. A discussion ensued, in which Prof. Westwood, Mr. M'Lachlan, and others, took part; and Mr. Meldola remarked, in reply to Mr. M'Lachlan, that the action of light upon the sensitive skin of a pupa had no analogy with its action on any known photographic chemical. No known substance retained permanently the colour reflected on it by adjacent objects. Mr. Meldola further observed that there was no difficulty in believing that larvæ might become affected in colour by the colouring matter of the food-plant, since chlorophyll in an unaltered condition had been found in the tissues of green larvæ. Facts of this nature did not, however, exclude the possibility of the action of Natural Selection in such cases, for the property of showing the colour of the tissues through the skin, if of advantage to the species, would be preserved through this agency.

Drawing of a Spider's Nest.—The Secretary read a letter he had received from Mr. Ogier Ward, enclosing a drawing of a spider's nest, with some remarks thereon by Mr. Charles O. Waterhouse. Mr. Ward had found the nest attached to some long grass in a quarry, near Poissy, on the Seine. Mr. Waterhouse, on examination, found it to be nearly filled with sand, but in the centre he found "a dry, rough, flat piece" attached to the base, which, on soaking in water for some hours, he discovered to be filled with a number of minute spiders, measuring one-twelfth of an inch. The granules of sand were held together and to the inner-bag by fine threads of web. He believed the object of the sand was to prevent the case being blown away, but he was not aware to what species the nest appertained.

November 16, 1874.—J. W. Dunning, Esq., M.A., F.L.S., Vice-President, in the chair.

Drawing of a Spider's Nest.—The Rev. O. Pickard Cambridge sent a note on the curious spider's nest exhibited at the last meeting. It was unknown to him; and had it not been for a remark in Mr. Ward's letter, implying that the nest he found belonged to a symmetrical (geometrical) web, he should have conjectured that it was the work of an Agelena. If, however, the nest was appurtenant to a symmetrical web it must belong to a spider of the family Epëirides. He did not think the sand in the nest was at all designed as ballast, but as a protection against the heat of the sun (sand being a non-conductor), and also against parasites. Mr. Smith remarked that the mud-coating of the nest of Agelena brunnea did not preserve that species from parasites, as he had often bred a species of Pezomachus from the nests, and he believed, in those instances, the spider's eggs had been attacked before the mud-coating was added.

Rare British Coleoptera.—Mr. Champion exhibited some rare species of British Coleoptera, namely:—Apion Ryei, taken by Mr. Lilley in Shetland; Abdera triguttata, from Avienda, Inverness-shire; Limexylon navale, taken by Messrs. Sidebotham and Chappell at Dunham Park, Manchester; Athous subfuscus, taken by the Rev. T. Blackburn in Shetland; and Apion sanguineum and Silvanus similis from Esher.

THE ENTOMOLOGIST.

No. 140.] MARCH, MDCCCLXXV. [PRICE 6d.

Life-histories of Sawflies. Translated from the Dutch of Dr. S. C. SNELLEN VAN VOLLENHOVEN by J. W. MAY, Esq.

(Continued from p. 28.)

NEMATUS ABBREVIATUS, *Hart.*

Imago: *Hartig, Blatt-und-Holzwespen*, p. 205, No. 38.

Larva hitherto undescribed.

Nematus fusco-niger, crassus, abdomine contracto, prothorace supra, trochanteribus, femorum apice, tibiis tarsisque anterioribus luteis, tibiis tarsisque posticis variegatis.

The genus Nematus of Jurine, which was, in fact, first precisely defined by Hartig, is, like all the divisions of the last-named author, made to depend principally on characters derived from the course of the nervures of the wings, and the genus so defined contains groups differing considerably in the structure of the body: some are slender, and more or less attenuated; and to this group belong N. Salicis and N. septentrionalis, and similar species, the larvæ of which have twenty legs, seldom, however, making any use of the last pair, and have the habit of almost incessantly alternately raising and depressing the abdomen. Others, to which our species Abbreviatus belongs, are short and compressed in form, and apparently proceed from larvæ having only eighteen legs. If this obtained as a rule, which I am far from being able to assert, it would, I think, tend to prove that divisions, depending exclusively on differences in neuration, are artificial and not natural; it would, however, be rash to attach too much weight to an observation made upon the metamorphosis of a single species.

The imago of Nematus abbreviatus is seldom met with. It may, of course, have been overlooked as belonging to the inconspicuous mass of sawflies with white, yellow, or reddish knees and anterior tibiæ, found nearly everywhere; but it is also possible that the insect is really scarce, and I admit that I am the more inclined to adopt this view when I call to mind the difficulty I had in rearing only one larva out of thirty which I possessed: this difficulty must also plead my excuse should a remark be made on the incompleteness of this life-history. In the beginning of May I found every year some green larvæ, resembling that represented on our tenth plate, feeding on the leaves of two pear-trees in my garden. At a very early stage of their existence they are found to have bitten round holes out of the leaves, free both of the midrib and of the margin of the leaf; they also rest in a somewhat curved position on the edge of the hole they have eaten out, so that they are only to be discovered by a sharp eye.

I have never found larvæ smaller than that shown at fig. 1, so that in this case also it appears very difficult to discover the first and very earliest stage of the animal's existence. On the petiole, however, of the leaves on which, or rather in which, such young larvæ lived, I almost always found a scar (see fig. 2), which appeared to me to indicate the place in which the egg had been concealed from which the little larva had proceeded. It appears that the larvæ move from place to place,—that is to say, they do not confine themselves to merely enlarging the hole in the leaf they at first bit out, for many holes are found, of the size of a silver penny, without inhabitant, and also leaves having two or three holes. When the larva has attained the size shown at fig. 3 it feeds indifferently from the margin or other part of the leaf, and, having hitherto always assumed a position with the back incurved, it now places itself as nearly as possible in a right line, so that even sometimes the last two or three segments project without any support. Larvæ which I had found on the 8th of May, of the size represented at fig. 1, had, three weeks later, attained their full size, as shown at fig. 4.

The green colour of the larva in its early stages is somewhat of a yellow tint, afterwards becoming a grayish green on the back, resembling the colour sometimes observed on willow leaves, the ventral surface and the legs being paler, and of a tint approaching to yellow. The head is of a faint brown tint, or very pale *feuille-morte*. The body is somewhat slender, smooth, devoid of hair, and having two rather thick folds on each segment reaching to the row of stigmata; of these the first only is conspicuous, being comparatively large and bordered with black, the others being much smaller and having white borders. The mandibles are brown, and the eyes, which are small, are placed in round black spots. The thoracic legs are rather long and of a green colour; there are, in addition, only six pairs of abdominal legs, and the last segment is entirely destitute of the usual pair of anal legs. The tail-end is somewhat pointed. This species does not wave about the tail, and there is no trace whatever of extensible glands between the legs.

I left my larvæ out of doors until the end of May, as I had found by experience that the twigs of the pear, although kept in water, very soon wither; I then placed them in large confectioner's glasses, which were filled up to a certain height with damp mould. The larvæ, one after another, let themselves fall from the leaves and crept into the mould. I examined the glasses from time to time all through the summer, looking to see if I could perceive any signs of life, but in vain; so that by October I gave up watching, hoping to find the imago on the wing in the spring. However, the month of May arrived and I had not seen an imago. I now removed all the old pear leaves, and under them I found a female imago, dead; it had probably kept concealed among the leaves ever since its emergence, and so I had failed to discover it. I now turned all the mould out of the glass, a little at a time, hoping still that I might find some pupæ or nearly-developed imagos, but in vain. I found nothing, and was obliged to content myself with my solitary specimen: this was a female, and as the individuals of this species, taken by Mr. G. A. Six and myself in April and May, were also females, I am unable to give a description of the male. It seems that Hartig, who says of the present species "fliegt mitte April in Garten," had also observed none but females. It may be remembered that in the case of other species of sawflies, even including some of the commoner sorts, the males appear to be wanting, from which circumstance Professor Siebold supposes that in the case of these insects parthenogenesis occurs the same as with some species of gallflies.

The imago is only from four to five millemetres long, and expands to one centimetre. The whole body is shining black. The head is broad and but slightly projecting, and, together with the thorax, is covered with very fine, silky pubescence. The eyes are widely separated; they are of an elliptical shape and moderately projecting, and are of a bronzy tint. The antennæ are black; they are as long as the abdomen, and are entirely similar in form to those of other species of Nematus,—for example, Vallator. The external angles of the prothorax towards the insertion of the wings, and the tegulæ, are of a reddish white. The anterior legs, from just above the knee, are of the same tint, which becomes somewhat darker towards the tarsi; the intermediate and posterior legs are also reddish at the knee, but the femora and tarsi are of a faded gray; all the apophyses and the tips of the coxæ are likewise of the same reddish tint. There is nothing remarkable about the transparent, more or less iridescent, wings; the nervures are of a faded earthy black, with the exception of the larger nervures at the insertion of the wing, where they are of a sordid white.

List of the Best Insects taken at Whittlesford during the past Season. By A. Thurnall, Esq.

Chœrocampa porcellus.—Several flying on sweet-william flowers, and the larvæ on Galium. This species seems to be much more common here than C. Elpenor.

Sesia ichneumoniformis.—Three flying in sunshine; one depositing its eggs at the roots of birds'-foot trefoil.

Liparis chrysorrhœa.—I found a "nest" of the larvæ on whitethorn, from which I bred a large number of insects. I have never taken it here before.

Ennomos fuscantaria.—Two pupæ and two larvæ; all spun up on the leaves of ash. They hatched in due time, two males and two females.

Geometra papilionaria.—Three specimens flying in woods.

Corycia taminata.—Four specimens flying in woods.

Scotosia certata.—One flying over barberry flowers.

Anticlea berberata.—Six or eight flying over barberry flowers.

Pericallia syringaria.—A few flying in the evening.

Eupithecia subfulvata.—Larva very common on milfoil.

Anticlea sinuata.—One moth and six larvæ, which have all changed to healthy pupæ. This is an easy larva to find and rear.

A. rubidata.—Three at light in June.

Coremia quadrifasciaria.—One female at light; laid a few eggs.

Aventia flexula.—Two flying in the evening.

Platypteryx unguicula.—A few larvæ and imagos beaten from beech.

Notodonta dodonæa.—A larva on an oak trunk, which died before turning.

Acronycta Ligustri.—Several pupæ in moss on oak trunks, and larvæ beaten off privet hedges.

Nonagria geminipuncta.—Nineteen pupæ in reed stems, from which I obtained twelve or thirteen moths. This is a new locality, I believe.

Apamea unanimis.—Several larvæ in March under bark.

Agrotis puta.—Very common at sugar in August.

Xylina semibrunnea.—About twenty-three at ivy bloom.

Eremobia ochroleuca.—A few on scabious bloom.

Toxocampa pastinum.—Common in the corner of one field.

Aglossa cuprealis.—Three specimens at rest.

Papilio Machaon.—Common at Wicken Fen in July.

A. THURNALL.

Whittlesford, Cambridgeshire,
January 25, 1875.

Entomological Notes, Captures, &c.

Chœrocampa Celerio and Cucullia Gnaphalii at Hayward's Heath.—I am but a beginner in Entomology, but as you seem to value records of scarce insects you will perhaps like to know of the occurrence of two rare insects in this neighbourhood. In 1869 a specimen of Chœrocampa Celerio was brought to me, picked up in a lane here, and fresh from the chrysalis. I grieve to say a mouse devoured it shortly afterwards, though there is a melancholy revenge in the thought that my cat devoured the mouse that same day. I did not take the care of it I ought to have done, as I was then engaged with Coleoptera, and did not know the prize I had in my possession. Since then I have turned my attention to Macro-Lepidoptera. In the summer of 1872 I found, in a wood infested with Cucullia Asteris, a caterpillar, which I believed to be the larva of Cucullia Gnaphalii; unfortunately it came to an untimely end. A like fate befel another specimen of the same species, which I found in the same wood in 1873. However, in 1874 I found the perfect imago at rest on palings not very far distant, and a few evenings afterwards took a second specimen flying in the same wood where I had previously found the larvæ. These two specimens are now in my collection.—[*Rev.*] *Thomas E. Crallan; Hayward's Heath, Sussex, February* 5, 1875.

Deiopeia pulchella near Scarborough.—It may be interesting to some of the readers of the 'Entomologist' to hear that I took a fine specimen of Deiopeia pulchella, near Scarborough, in June, 1870.—*John M. Benson; 5, Beech Grove Terrace, Leeds, January* 6, 1875.

Cucullia Scrophulariæ (Entom. viii. 37.)—In reply to Mr. Doubleday, I may say that I am by no means confident that the species I took at Whittlesea belongs to this; and it appears I forgot to insert a note of interrogation after it in my list. I found the larvæ feeding on figwort (Verbascum*) in the latter part of June, and thought they must either be Scrophulariæ or Verbasci. I was not aware that the former was such a rare insect in this country. They are now in the pupa state, and their appearance will decide. Should I have made a mistake I will correct it then.—*S. L. Mosley; Edwinstowe, February* 15, 1875.

Leucophasia Sinapis (Entom. viii. 37).—I thank Mr. Doubleday for his information about this species, but it seems a matter of opinion, with very few facts to support it. I think those who live in localities for Sinapis would do well to investigate the matter. The white specimens that have come under my notice have generally been larger than the black-tipped ones, and especially broader in the fore wing.—*Id.*

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* The figwort is *Scrophularia;* the mullein, *Verbascum;* hence, perhaps, the confusion of names.—*Edward Newman.*

Sarrothripus Revayanus at Killarney.—Have I told you of the capture of a single specimen of S. Revayanus at Killarney, or rather close to Carra Lake, in Kerry, last August twelvemonths? It is unique as Irish.—*F. I. Battersby; Cromlyn, Rathowen, January* 2, 1875.

Roslerstammia pronubella at Salcombe.—On looking over the old 'Annuals' I was able to identify a very pretty little moth I took at Salcombe in June 1873,—Roslerstammia pronubella, figured in the frontispiece for 1855.—*G. C. Bignell; 6, Clarence Place, Stonehouse, Plymouth, January* 23, 1875.

A Coleophora New to Britain: Coleophora Tripoliella (Hodgkinson).—Some three years ago I took several specimens of a Coleophora on the salt marshes near Fleetwood. It came so near C. Virgaureella in appearance that it was not safe to pronounce decidedly upon it: still I could see it was a more robust insect than Virgaureella; when very fine it has a more smooth and silvery appearance as well. Last October I found a number of the larvæ and cases on Aster Tripolium: the cases are much larger and darker than the cases of Virgaureella. I have sent cases of both to Mr. Stainton, and he thinks my name a very suitable one.—*J. B. Hodgkinson.*

Description of the Larva of Noctua baja.—Eggs of this species were obtained from a specimen captured at Sherwood Forest in August, 1872. They hatched on the 3rd of the following month, and at once began feeding with avidity on wild rose. At the end of the month they were one-third of an inch in length, and by the middle of December had attained to five-eighths of an inch: they were still feeding, and indeed continued to do so throughout the winter, taking readily to bramble, dock, and, in fact, almost anything when rose was no longer to be obtained. They began to "go down" about the middle of April, though some at this date were only half-grown. When full-grown the larva may be described thus:—Length about an inch and three-eighths, and rather plump in proportion; head slightly retractile, globular and shining, rather narrower than the 2nd, and very much narrower than the 3rd segment; body cylindrical, rather obese, and slightly attenuated near and towards the head; the segmental divisions are distinct, and the skin smooth and soft. Ground colour dirty ochreous-brown, tinged with red, in some specimens the red being much stronger than in others, especially on the dorsal surface; head pale brown, with a conspicuous dark brown mark on each lobe in front. A narrow yellowish line, edged with smoke-colour, forms the medio-dorsal line; subdorsal lines yellowish; these and the medio-dorsal line are very much interrupted, and very conspicuous only on the 2nd segment, where they are much broader and nearly white; there are no perceptible spiracular lines; the subdorsal lines are surmounted on each segment, from the 4th to the 12th, by a small yellow triangular mark, the apex of each pointing towards the head, and these marks are bordered above with rather broad smoky marks, which appear to meet on the medio-dorsal line, each pair forming a V-shaped mark, the apex pointing backwards; those on the 11th and 12th segments, however, are much larger and blacker than the others, and take the character of distinct marks, almost obliterating the yellow spots beneath them; a broad, dull, reddish band extends along the spiracular region, and the space between this and the subdorsal line is variegated with smoke-colour; spiracles and trapezoidal dots black. Ventral surface and claspers dirty grayish ochreous and semi-translucent; legs shining, pale pinkish brown.—*Geo. T. Porritt; Huddersfield.*

Description of the Larva of Notodonta cucullina.—On the 7th of August last I received from Mr. F. D. Wheeler, of Norwich, seven or eight larvæ of this species, and on the following day took down a description as follows:—Length about an inch and a quarter, and of average bulk in proportion; the front of the head flat, but the sides of the lobes rounded; it is broader than the 2nd segment, and slightly notched on the crown. Body irregularly cylindrical; of the segments, the 2nd is narrowest, and from it they gradually widen to the 6th, from which, to the 12th, they are of about equal width, but the 13th is rather sharply attenuated to the anal extremity. On the 12th segment is a prominent dorsal hump, and a smaller double hump on the 5th, 6th, 7th, 8th, and 9th, these humps being most conspicuous when the larva is at rest. Skin soft and puckered, and the segmental folds deeply marked. Ground colour grayish white, tinged with green; the head very pale yellowish brown, with chocolate-brown streak on each side and at some distance from the median suture; there are several similarly-coloured marks about the mouth and on the sides of the lobes. Medio-dorsal stripe dull, dark green; it is narrow from the 6th to the anal segment, but takes the form of a gradually-widening broad stripe from the 2nd to the 8th, where it is widest; it is intersected in the centre of the 2nd and 3rd with a fine purplish line; subdorsal lines of the same colour as, but fainter than, the medio-dorsal, and bordered outside with a pale yellow stripe; there are no perceptible spiracular lines. The hump on the 12th segment is dark purplish brown, and a number of black horny spots form a sort of collar round the 2nd segment, just behind the head; segmental divisions yellow; trapezoidal dots on the anterior segments—on the broad part of the medio-dorsal stripe—very black and distinct, but not noticeable on the others; spiracles large and distinct, pinkish, surrounded with black; ventral surface yellowish green, without markings; legs and claspers pinkish brown. Rests with the front and anal segments raised and thrown backwards,—the usual Notodonta attitude.—*Geo. T. Porritt; Huddersfield.*

Explanation of the Phylloxera Plague.—In a paper read before the Paris Société d'Acclimatation, Dr. Turrel suggests that the rapid spread of the Phylloxera Vastatrix in France is due to the scarcity of small birds in that country. Forty years ago, he says, linnets, tits, &c., were numerous in Provence, and in the autumn they could be seen posted on the vine branches, carrying on a vigorous search after the insects, and larvæ and eggs of insects, concealed in the cracks of the stem and leaves of the plant. Since the commencement of the present century, however, it is easy to perceive that the destruction of small birds has been carried on more and more generally; and that, concurrently with this war of extermination against the feathered tribes, the numbers of destructive insects have increased at an alarming rate. Dr. Turrel thinks that, though it cannot be absolutely maintained, that the oidium and the Phylloxera,—the two latest forms of vine disease (the one a vegetable, the other an insect parasite),—owe their frightful extension to the scarcity of small birds; yet it is unquestionable that a plant like the vine, weakened by the attacks of insects, is less in a condition to withstand the ravages of parasites; and that, deprived of its feathered protectors, and left to the successive and unchecked onslaught of the vine-grub and other normal enemies, it has been predisposed to succumb before the ravages of its new enemies.

[Dr. Turrel's paper is thus reported in 'Nature,' of Nov. 19. I could have desired nothing better than to know that the rapid increase of Phylloxera is due to the destruction of small birds; but Dr. Turrel only suggests this: he does not kill a linnet and find a hundred thousand specimens of Phylloxera in what is commonly called its "crop;" nor does he show how the linnet is to get at the roots of the vine where the Phylloxera is at work. A month previously I observed the fumes of carbolic acid were announced as an infallible cure of Phylloxera, but it was not said how they were to be applied. Before crude hypotheses are given to the public, with the sanction or through the instrumentality of Science, the subject should be thought over, and the feasibility of the cure considered. I cannot say that linnets *do not* feed on Phylloxera; but I consider it extremely improbable. Again, I am quite unable to show that carbolic acid is not efficacious; but I think it is obvious that the infected roots must be exposed to its fumes, and when exposed it would be much easier to burn them. Nothing would delight me more than to arrest the insane desire to exterminate small birds; but we must be careful not to ground our protection on hypotheses obviously untenable; and I think, moreover, it is injudicious (to say the least) to place an insect and a fungus in the same category, as possibly to be kept in check by birds.—*E. Newman.*]

Fossil Insects in Canada.—Where the excavations for laying the water-pipes are being made, near Rideau Hall, on the grounds of the Governor-General of Canada, the workmen have made a strange geological discovery. It is a stratum of fossil-rock several feet thick, containing the most accurate and beautiful petrified winged insects: there are some like butterflies, with the delicate fibre of the wings in a most perfect state of preservation.—'*Times.*'

Answer to Correspondent.

Charles Clifton.—Sugaring for Moths.—Can you tell me, in the 'Entomologist,' what is the time for going out to look at your sugar for moths? as I was in the country the other day and went out at eight, nine and ten o'clock, but was not successful. Ought I to have tried later? I then thought it was a bad night, and gave up.

[I believe there is no stated time. It is usual to sugar a great number of trees, and then take the round of them in regular succession every half hour, beginning at dusk; but I cannot boast of much experience in this matter, not liking night-work.—*Edward Newman.*]

Extracts from the Proceedings of the Entomological Society of London.

DECEMBER 7, 1874, and JANUARY 4, 1875.

Sir Sidney Smith Saunders, C.M.G., President, in the chair.

British Oak-galls.—Mr. E. A. Fitch exhibited some oak-galls of Dryocosmus cerriphilus, *Gir.*, Aphilothrix globuli, *Hart.*, A. albopunctata, *Schl.*, and A. callidoma, *Hart.*; together with three curious bud-galls, unknown, from Rayleigh, Essex.

Hemiptera of the Mediterranean.—Mr. Champion exhibited an interesting collection of Hemiptera, brought from the Mediterranean by Mr. J. J. Walker. Amongst them were Trigonosoma Desfontainei, from Cagliari; Phyllomorpha laciniata, from Gibraltar; and Prionolytus Helferi, from Tangier.

Beetles in Tea.—Prof. Westwood forwarded a letter he had received from Mr. J. F. M. Harris Stone, accompanying a sample of tea imported from Shanghae, infested by a small beetle, which proved to be Niptus hololeucus, an insect belonging to a genus, the species of which feed indifferently on dried vegetable as well as animal matter.

[A full account of this beetle, so far as known, appeared in the February 'Entomologist' (Entom. viii. 43).—*E. Newman.*]

Phylloxera Vastatrix in Switzerland.—Prof. Westwood also communicated a letter from Prof. Forel, of Lausanne, stating that the Phylloxera Vastatrix had made its appearance among some vines at Pregny, in the canton of Geneva, which had been introduced from England into the graperies of Baron Rothschild, and that the Phylloxera had been discovered in two of his greenhouses, among vines planted in 1869, sufficiently distant from each other to render it improbable that the insect had been communicated one from the other; and he therefore concluded that the disease had been introduced in 1869 from the graperies in England. The vines so attacked had, however, not succumbed to the disease, but were simply rather weaker than those which had not been attacked. He was, therefore, anxious to ascertain whether the vines in the English graperies were less influenced than those out of doors; but none of the members present were aware of the occurrence of the insect in England out of doors, but that it had hitherto appeared in greenhouses only.

Synonymical Notes on Longicorn Coleoptera.—Mr. C. O. Waterhouse communicated the following:—

"Fam. PRIONIDÆ.

Acanthophorus Palinii, Hope.—This species was placed by Mr. Adam White, with doubt, as Acanthophorus Yolofus of Dalman, and in Gemminger and Harold's 'Catalogue of Coleoptera' they are placed together without even a doubt. There being, however, in the British Museum a species of Tithoës (to which genus A. Palinii must now be referred), which I believed to be the true A. Palinii, I referred to Prof. Westwood, who kindly sent to me a sketch of Hope's type in the Oxford Museum, confirming my determination, and making it certain that A. Yolofus and A. Palinii are quite distinct species. Tithoës Palinii resembles T. confinis, but is shorter; the eyes are much approximated above; the thorax is broadest in front, with the anterior spine strong (much longer than the lateral spine), and very much recurved; the elytra are marked much in the same way, but the apex of each elytron is less rounded, and there is a small tooth at the sutural angle. Length 1 inch 10 lines; width 8 lines. Habitat, Sierra Leone.

Acanthophorus capensis, White.—This species is correctly placed in that genus, and does not belong to Tithoës, as placed in Gemminger's Catalogue.

Mallodon Gnatho, White.—This insect must be placed in Lacordaire's genus Nothopleurus (Gen. d. Col. viii. p. 125). As nothing is said by Lacordaire about the form of the mandibles in the description of N. ebeninus, it will probably prove to be a species distinct from M. Gnatho, which has a remarkably large triangular tooth on the upper edge at the base of each mandible. The thorax of M. Gnatho has parallel sides.

Tragosoma subcoriaceum, Hope, female, 1831.—The male of this insect was described in 1867 by Mr. Pascoe, under the name Sarmydus antennatus.

Fam. CERAMBYCIDÆ.

Eburophora, White (*Eburigera*, Gemm. and Harold, Cat. p. 2899).—This genus should be placed next to Sophron, *Newm.*, and Sophron eburatus, *Pascoe*, should be transferred to it.

Trichoxys flexus, Chevr., 1860 = Clytus melanotelus, *White*, 1855. (Types compared.)

Anthoboscus figuratus, Pascoe, 1869 = Clytanthus marginalis, *Chevr.*, 1863. (Types compared.)

Anthoboscus leucothyreus, Pascoe, 1869 = Clytanthus austerus, *Chevr.*, 1863. (Types compared.)

Clytanthus oppositus, Chevr., 1863 = Clytus signaticollis, *Lap. & Gory*, but with the pubescence rubbed off the abdomen; it is not a synonym of C. japonicus, as suggested by Mr. Bates, Ann. & Mag. Nat. Hist., 1873.

Clytus Protogenes, Newman.—This is not a synonym of Chlorophorus annularis, as placed in Gemminger's Catalogue, but belongs to the genus Acrocyrta, with the third and fourth antennal joints (and fifth slightly) spined; it is very closely allied to Acrocyrta strangaloides of Pascoe.

Xylotrechus famelicus, Pascoe.—This species, for which Mr. Pascoe had no locality, is from Borneo.

Clytus dominula, White.—Is a Xylotrechus, closely allied to C. Grayi, *White*, and is not a Rhaphuma, as placed by Chevrolat.

Clytus subcruciatus, White.—Is a Calanthemis.

Clytus Phidias, Newman.—Is not Xylotrechus australis, *Lap. & Gory*, as placed in Gemminger's Catalogue, but it is closely allied.

Clytus Mouhotii, Pascoe, 1869 = Clytus semiluctuosus, *White*, 1855.

Eriphus leucogrammus, White = Pœciloderma lineolatum, *White*, and belongs rather to this latter genus."

Varieties of Diloba cæruleocephala and Hibernia defoliaria.—Mr. Stevens exhibited varieties of Diloba cæruleocephala and Hibernia defoliaria, bred from larvæ taken near Brighton.

Indian Hymenoptera.—Mr. Smith exhibited a fine collection of Hymenopterous insects, forwarded from Calcutta by Mr. Rothney. Amongst the Formicidæ were Polyrachis bicolor and Dorylus longicornis. Amongst the Fossores were Mutilla sexmaculata, Pompilus dorsalis, Sphex sericeus, Chlorion lobatum, Ampulex compressa, Ammophila nigripes, Trirogma cærulea, Larrada aurulenta, and Bembex lunata. Amongst the Vespidæ were Eumenes petiolata, E. conica, E. flavopicta, Rhynchium transversum, R. argentatum, and Vespa cincta. The specimen of Rhynchium transversum had been attacked by Stylops. There were also (of Apidæ) two new species of Nomia—one of them with capitate antennæ—and a new species of Nomada. Also several small, undescribed species of bees of the genera Prosopis, Halictus, and Ceratina; and a fine series of Stelis carbonaria. The whole were in beautiful condition.

The Winter Moth attracted by Gas-lamps.—Mr. M'Lachlan stated that one evening, about thirty-six hours after the breaking up of the recent intense frost, he had noticed the December moth (Cheimatobia brumata) attracted in great numbers to the gas-lamps in the neighbourhood of Lewisham, and that in some instances there were as many as a dozen on one lamp. Mr. Boyd mentioned a case that had come under his observation of that insect having been picked up, apparently dead, on the snow, and that it had revived on being placed in a warm room. Mr. Butler also noticed a similar fact in regard to a specimen of Pieris Rapæ. Mr. Jenner Weir made some remarks on the importance of ascertaining whether the insects noticed by Mr. M'Lachlan were hybernated specimens, or whether they had been newly hatched when he observed them.

Larvæ of a Mantis.—The Secretary exhibited a bottle containing a number of specimens of a Mantis, about half an inch long, which had been forwarded to him from Sarawak by M. de Crespigny, who was under the impression that they were perfect insects; but on examination they appeared to be only young larvæ. He observed them crossing the table at which he was sitting, and at first sight they had the appearance of a column of ants.

JANUARY 25, 1875 (ANNIVERSARY MEETING).

Sir Sidney Smith Saunders, C.M.G., President, in the chair.

[After the usual review of the state of the Society, and obituary notices of Prof. Zetterstedt, Dr. Herrich-Schæffer, George Robert Crotch, Francis Walker, Dr. Antoine Dours, and John Traherne Moggridge, the President gave the following lucid and instructive summary of the progress of Economic Entomology on the Continent of Europe, in the United States, and in England, alluding to the several subjects of "Phylloxera of the Vine," "Colorado Potato-beetle," "Bee-Keeping," "Economy of White Ants," "Economy of Stingless Bees," "Habits of Social Hymenoptera," and "Fertilization of Flowers by Insects," as follows:—]

The Phylloxera of the Vine.—The ravages of the Phylloxera Vastatrix, and the remarkable incidents connected with the life-history of this minute but formidable enemy of the viticulturists, have been the subject of many interesting communications to the Académie des Sciences of Paris, and to the French Entomological Society, during the past year. Among the innumerable remedies which have been advocated and tested as a means of checking the progress of this scourge, the only treatment hitherto recognised as absolutely effective is the submersion of the vineyards, where practicable, during one month in winter, which has been attended with perfect success. The principal facts ascertained in connexion with the biology of these destructive Homoptera may not be undeserving of some notice, considering the vast proportions which their propagation and extension have now assumed. The young larvæ, which hybernate on the roots of the vine, whether derived from the autumnal sexual races adverted to in the sequel, or (as it would seem) from antecedent broods, commence laying eggs in the early spring, their progeny producing and reproducing in continuous succession by agamogenesis, as usual among the Aphides, though, unlike these, always oviparous. Among these successive broods some individuals never acquire wings;

while others, becoming more elongate, quit the earth as pupa-nymphs, furnished with rudimentary alary appendages, emerging in the winged state from July to September. But the development of the race does not terminate here, on attaining the winged condition. In an interesting memoir, 'Sur le Phylloxera ailé et sa progéniture,' M. Balbiani has shown that these winged females (to which no males are ascribed) deposit their eggs, two to five in number, amid the down of the young vine-leaves, when in captivity; from which eggs an apterous sexual race is derived, as previously described by him (in 1873) in the case of the Phylloxera of the oak (P. Quercus of Fonscolombe), these eggs being of two different dimensions, the larger producing females, and the smaller males, both sexes destitute of organs of nutrition, the promuscis being reduced to a short flattened tubercle, and the female having the third joint of the antennæ pedunculated. The same diligent observer has more recently ascertained that the subterranean brood of the Phylloxera of the vine is also continued from year to year by a similar sexual race, which appears later than that derived from the winged type (about the middle of October), but perfectly identical therewith, the females of both producing only a single egg (*l'œuf d'hiver* of Balbiani); whereby, in the one case, the continuity of the race is maintained for several years upon the same root until this is entirely exhausted; while, in the other, by the intervention of the winged type, new colonies are dispersed far and wide. M. Balbiani also states that certain abnormal forms, occasionally found mingled with the winged type, noticed by him in several other species and formerly considered as males, are rather to be regarded as females with atrophied characters, somewhat analogous to the neuters of social Hymenoptera. Some strange theories, however, have been propounded by M. Lichtenstein, as to certain phases in the genetic cycle of the race, whereby it is alleged that the winged Phylloxera of the vines resort to the Kermes oak (Quercus coccifera) to deposit—not eggs, but —*pupæ*, from which such sexual race is developed as aforesaid; this winged type being characterized as "Androphores" and "Gynéphores," according to the sex of the *pupæ* deposited by these so-called "flying cocoons." M. Balbiani, however (on examining other specimens taken by himself), maintains that the author of this startling hypothesis has confounded two distinct species; that alluded to as aforesaid being, as he conceives, a new species (to which he gives the name of P. Lichtensteinii), differing from P. Vastatrix in all stages of development, including that of the sexual race; while the manner in which it had been sought to explain the return of the progeny of the latter from the oaks to the vines, by means of a second suppositious winged-type, would be contrary to all the analogies of the genus. M. Lichtenstein demurs to these conclusions, and repudiates the name given by M. Balbiani, alleging:—(1) That the species adverted to by the latter is not new, being his P. Rileyi, described also by Kaltenbach in 1873, under the name of P. corticalis; (2) that this is not the species which he had found on the Kermes oak; (3) that although the former subsists on the Quercus Robur, he expects to prove next year that both this species and the P. Vastatrix resort to the Q. coccifera to deposit their *pupæ;* and (4) that he has found another species sparsely associated with these on the same oak, and nurtured thereon, being met with not only in the winged form, but also in the larval and pupal stages (distinguished by having two cylindrical and retractile tubercles between the antennæ), on which he confers the name of P. Balbianii. With respect to the galls on the under side of certain vine-leaves, less frequently met with in France than in America, and having a fimbriated aperture from above, Mr. Riley, the State Entomologist of Missouri, has long since shown (Third Report, 1871) that the autumnal individuals emanating from these galls descend to the roots, as subsequently verified by M. Signoret and others; and more recently Mr. Riley has obtained a leaf-gall (which, however, subsequently proved abortive) from one of the root-infesting type, which he defines as Radicicola, in contradistinction to the other, which he designates as Gallæcola. These galls, tenanted by an agamic apterous race, which never acquires wings (formerly attributed to the ovipositing winged females), Mr. Riley is now disposed to ascribe to the young hatched on the roots, more extensive experience having satisfied him that the presence of the Gallæcola type is not the invariable precursor of the Radicicola in an uninfected vineyard, nor in anywise essential to the continuance of the species. The same author, in a paper recently read before the Académie des Sciences (December 14th), enumerates sixteen well-defined species of Phylloxera indigenous to North America; whereof only one is found on the vines, and one (P. Rileyi) on the oaks; the others being chiefly met with on different species of Carya. It is, moreover, worthy of remark that M. Signoret, on the 23rd of September, informed the Entomological Society of France that he still possesses a potted vine, whereon his first experiments were made in 1869; that every year he places on this vine the Phylloxeræ which are sent him, whether of the root or leaf-gall type; and that this vine is *still alive,* in spite of the Phylloxeræ upon its roots; retaining its verdure, though not in very thriving condition, from having been five years in the same earth and the same pot. A species of Acarus (the Tyroglyphus Phylloxeræ of Riley), which preys upon the root-inhabiting type, has been discovered by Mr. Riley in America, whereof colonies are being introduced into France; but Mr. Riley considers that any expectations founded thereon are doomed to disappointment. The T. echinopus, described by Dr. Fumoze and Prof. Ch. Robin in 1868, has also been found on the French vines. Another species of Tyroglyphus, met with abundantly on Fungi, more especially on the Agaricus campestris, has been the subject of an interesting communication by M. Méguin, published in the Paris 'Journal d'Anatomie et de Physiologie,' intituled "Mémoire Anatomique et Zoologique sur un nouveau Acarien de la Famille des Sarcoptides, le Tyroglyphus rostro-serratus, et sur son Hypopus," showing that the latter is but an adventitious nymph-form of the former, which the octopod-nymphs assume by moulting, when the Fungi become desiccated, resuming their previous nymph-condition by another moult on the moisture being renewed. This incidental heteromorphosis not extending to other stages, the hexapod-larvæ and adults are doomed to perish under such circumstances, while the occult-nymphs, in their Hypopus coat-of-mail, attach themselves to any insects that come in their way, for conveyance to another suitable abode, whereby the continuance of the race is provided for. A similar transmutation has been observed by MM. Riley and Planchon in the Tyroglyphus Phylloxeræ.

The Striped Beetle of the Potato.—The Colorado potato-beetle (Doryphora decem-lineata) is an enemy whose rapid advances towards the shores of the Atlantic threaten an invasion into Europe at no distant day. Mr. Riley points out how these destructive insects, when once established on the sea-board, may wing their way to vessels in port, being accustomed to fly in swarms, and may thus be borne over to found a colony in this country, irrespective of conveyance with the tubers themselves, which they are stated to devour greedily when dug up, several having been found ensconced in a single potato. Mr. Riley suggests that Agricultural and Horticultural Societies should make provision for the dissemination of correct information respecting these insects; and that specimens of the beetles themselves should be obtained for distribution, with the view of familiarizing persons with their aspect, and of preventing their diffusion. The importance of some efficient measures being adopted for this purpose can hardly be overrated, in default of which this scourge must assuredly be expected to follow in the wake of the Phylloxera, the Oïdium, and other noxious importations from the same quarter. Mr. Riley's reiterated remarks on this head have a somewhat prophetic significance, when calling to mind that "in giving, through Sir Walter Raleigh, the precious tuber to Europe, America conferred upon the Old World an everlasting boon. She may yet unwittingly be the means of bequeathing as great a bane, by sending across the ocean the deadliest enemy of that tuber. At all events it behoves our European neighbours to be on the look-out, and to prevent, if possible, any such catastrophe." The attention of the Académie des Sciences has just been drawn to this subject by the French Minister for Commerce and Agriculture.

[On Monday, 8th February, Mr. Herbert introduced this pet panic into the House of Commons, by asking the Chief Secretary for Ireland whether Her Majesty's Government had taken any steps to prevent the introduction of the Colorado beetle into Ireland by the importation of American seed-potatoes or otherwise; and, should no precautions have already been instituted, what were the intentions of Her Majesty's Government on this subject. Sir M. H. Beach replied:—" The subject of the honourable member's question was brought under my notice some time back, and I thought it right first to ascertain what steps had been taken by foreign Governments in the matter. I find that the only Governments which have taken any real action are those of Austria and Belgium. The former has assured the Government of Switzerland, which had warned the European maritime countries of the possible danger, that the importation of American potatoes would be prohibited; and the Belgian Government has introduced a Bill for a similar purpose, which has been agreed to by a special committee. I have also made enquiries as to the nature and extent of the evil to be apprehended. I think there is reason to suppose that the harm recently done to the American potato crop has been much exaggerated, and I am informed that the insect in question has been known in America for more than a century. It attacks the stalks and leaves of the potato-plant, not the root, though that naturally becomes diseased in consequence. No potato-stalks or leaves are imported from America, and, as only healthy roots would be imported, it would seem hardly possible that the insect could be thus conveyed into this country. I am now in communication with the English Privy Council on the subject, because it is obvious that if any preventive measures are adopted they ought to apply to the whole of Great Britain, as well as to Ireland. But I must add that the importation of potatoes into the United Kingdom, especially in the event of a failure of the home crop, is very large, and therefore any interference with this trade would require the most careful consideration on the part of Her Majesty's Government."—*Edward Newman.*]

Bee Keeping.—The British Bee-keeper's Association, instituted in May last, "for the encouragement, improvement, and advancement of Bee-culture in the United Kingdom," under the Presidency of Sir John Lubbock, held its first exhibition at the Crystal Palace in September last. This institution is calculated to confer important benefits upon the rural population by diffusing information as to the most approved principles of Apiculture, in the management of the hives, the collection of the produce, the preservation of the combs, and other matters, whereby the most profitable results may be obtained, thus holding out encouragement to many who have been deterred from embarking in such a lucrative enterprise by apprehensions of incompetency; or who, having done so, have not known how to turn the resources of this vicarious industry to the best account. 'The British Bee Journal and Bee-keeper's Adviser,' published monthly, and now far advanced in its second volume, affords a useful medium of intercommunication upon this subject.

Economy of White Ants.—Two interesting communications from Herr Fritz Müller to Mr. Darwin have appeared in 'Nature' (Nos. 225 and 237), in the former of which the writer, treating of the natural history of the Brazilian Termites, states that he has come to the same conclusion as Mr. Bates with respect to the neuters,—namely, that these are not sterile females, but modified larvæ, which undergo no further metamorphosis; that, in some species of Calotermes the male soldiers may even externally be distinguished from the female soldiers; and that in the company of the queen there always lives a king, as observed by Smeathman a century ago, but doubted by most subsequent writers. He has also recognised the existence of two forms of sexual individuals; the one, consisting of *winged* males and females, produced in vast numbers, and leaving the termitary in large swarms; the other, of *wingless* males and females, which never quit the spot where they are born. A similar result would appear to be attained thereby, as in the case of the winged and wingless sexual races of the Phylloxera, already referred to, the former serving to disperse the race; the latter to continue the labours of the original colony by successive broods.

Economy of Stingless Honey Bees.—Herr Fritz Müller subsequently adverts to another "interesting group of social insects, the stingless honey-bees, Melipona and Trigona." He mentions that in Melipona wax is secreted "on the *dorsal* surface of the abdomen," instead of on the *ventral*, as in hive-bees; that the Meliponæ and Trigonæ "fill their cells with semi-digested food before the eggs are laid;" and that they close the cells "immediately after the queen has dropped an egg on the food;" whereas, in the hive-bee, the eggs are laid in nearly empty cells, which the workers close with wax when the adult larvæ, which they have been feeding, are about to undergo their pupa-metamorphosis. At a recent meeting of the French Entomological Society

(December 9th) a paper on the habits of the Brazilian Meliponæ and Trigonæ, by M. Maurice Girard, was read (although not yet published), from which it would appear that one of the former group establishes its nest in the interior of termitaries, living in amicable relations with a species of Termes. A new species of Brazilian Trigona, whereof the queen, males, and workers have been described by Herr Hermann Müller under the vernacular name of T. cagafoga ('Nature,' Nos. 193 and 237), is "supposed" to imitate some of the Formicidæ, in milking the larvæ of certain Membracidæ belonging to the Homopterous genus Potnia of Stäl, to which, in the absence of Aphides, the ants of Brazil have recourse for the purpose of imbibing the saccharine fluid, which the former also emit.

Habits of Social Hymenoptera.—Sir John Lubbock has communicated to the Linnean Society, on two occasions during the past year, the results of some highly interesting observations made by him "On the Habits of Bees, Wasps, and Ants," his experiments having for their object to test the extent to which the social Hymenoptera may be enabled to communicate with each other. The deductions to be drawn from these experiments would seem to be of a character to dissipate much of the fantasy with which this subject has been invested by those writers who have attributed to such communities the employment of "*some kind of language*" as a medium of intercommunication. But in ascribing such faculties to these co-operating colonies, it may be conceived that (speaking figuratively) more was never intended to be implied than the habitual employment of certain symbols for intelligible purposes; and that none of these writers ever intended to assume that any of these interesting races could exercise the power of describing localities or of communicating facts, without acting as pioneers to their companions, and (as Hüber says) *bringing* others to such localities. As an instance of this nature, I may mention a circumstance in which similar evidences were elicited. A Polistes nest having been brought to me full of feeding larvæ, with a single specimen of the imago brood, I placed this nest, together with its solitary occupant, outside a window, but within the exterior Venetian blinds corresponding with those of three floors of several consecutive houses, covering the nest at first with a tumbler, which was removed during the night; and in the morning the Polistes proceeded in search of her companions, bringing back with her two others to assist in feeding the larvæ. Some means of intimating to her associates the object of her apparition, and of urging them to trust to her lead, must doubtless have been made available on this occasion; but that she should have been enabled to define the particular window, among so many, where the nest remained concealed from view, and prevail upon the others to accompany her on such a strange and unaccountable expedition to a remote and unnatural locality for the discovery of the lost nest, could only have been accomplished by the exercise of a considerable amount of intelligence and communicative instinct. That these Polistes belonged to the original brood could scarcely be doubtful, as all others would return to their respective domiciles; but, as supererogatory evidence thereof, I added some strangers to the party from other nests taken elsewhere, and these intruders were at once attacked and driven away. This nest (now exhibibited with some of its occupants *in situ*) is remarkable from having been constructed, to some extent, of the macerated paper of play-bills of different colours posted in the vicinity, as shown in the tinted layers of the respective cells. On a former occasion Sir John Lubbock pointed out that the sounds produced by the wing-vibrations in Hymenoptera vary according to circumstances; that "a tired insect produces a somewhat different note from one that is fresh, on account of the vibrations being slower;" that this "change of tone is evidently under the command of the will, and thus offers another point of similarity to a *true voice;*" that "a bee in the pursuit of honey hums contentedly on A′, but if it is excited or angry it produces a very different note;" and that thus the sounds of insects "serve, *like any true language,* to express the feelings." He also remarks that "as even we, far removed as we are in organization, habits, and sentiments, from a fly or a bee, can yet feel the difference between a contented hum and an angry buzz, it is highly improbable that their power of expressing their feelings should stop here;" and that "one can scarcely doubt that they have thus the power of conveying other sentiments and ideas to one another." In the case of these Polistes (without diving too deeply into their mysterious endowments in this respect) we may readily conceive the rapturous excitement manifested by the new comer from the lost domicile, as compared with the lassitude and despondency exhibited by the lorn home-seekers; nor can we err in assuming that, after the customary greetings of recognition on the deserted side, some conscious allurement must have been imparted to the latter to induce them to confide in such cogent invocation to follow the former; her object being attained as though her motives had been enunciated by *voice* or *language*, and her summons conveyed through such a medium.

Fertilization of Flowers by Insects.—The fertilization of flowers by insects (treated in several additional papers in 'Nature' by Messrs. Hermann Müller and T. H. Farrer) has also been the subject of a very remarkable Address by Sir John Lubbock, before the British Association, at Belfast, showing their mutual dependence upon each other, and pointing out how the sustenance afforded to the latter is requited by the transfer of pollen essential to the existence of the former, while calling attention to many structural peculiarities exhibited on either side admirably adapted for this purpose. But in discussing the mouth-parts and legs among the bees and wasps, upon which considerable stress is laid, as exemplifying modifications of these parts from an ancestral type, it should not be lost sight of that such suitable adaptation of organs to the requirements of the several races alluded to, is associated with many characteristic distinctions in the veining of the wings, coinciding with other relations of lineage and affinity, and furnishing, together with the aforesaid organs, premonitory indications of differences in habits and economy. "That the mouth of Prosopis" (one of the solitary bees) "probably represents the condition of that of the ancestors of the hive-bees before their mouth-parts underwent special modifications;" and that this "may be inferred from the fact that the same type occurs in other allied groups, as shown in the mouth of a wasp" (our "Polistes," to wit), is a deduction scarcely reconcilable with those divergences in alary structure between the respective groups, which are altogether independent of functional development, and of those influences for adaptational purposes which have been held to determine the survival of the fittest.

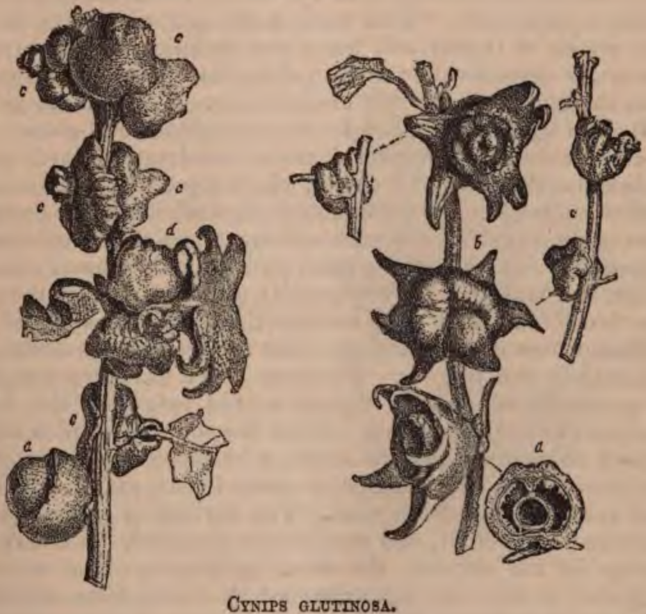
THE ENTOMOLOGIST.

No. 141.] APRIL, MDCCCLXXV. [Price 6d.

Descriptions of Oak-galls. Translated from Dr. G. L. Mayr's 'Die Mitteleuropäischen Eichengallen' by Mrs. Hubert Herkomer *née* Weise.

(Continued from vol. vii. p. 267.)

Fig. 21.



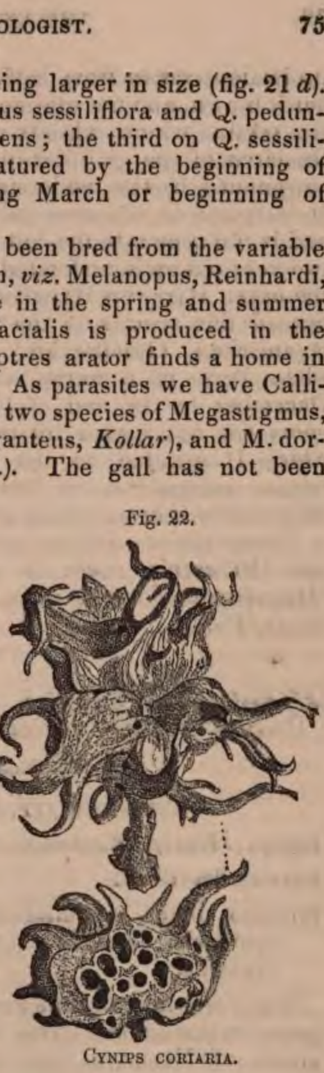
Cynips glutinosa.

21. *Cynips glutinosa*, Gir.—This species produces galls of three or four different shapes, which are seldom connected

by intermediate forms. Dr. Giraud has described three of these varieties. The first variety, most frequently met with (the true C. glutinosa), is subglobular, and is about a centimetre in diameter. Its base generally adheres so closely to the twig or petiole that these produce impressions on the gall. At the point opposite the base there is an umbilicated cavity. On the whole, the basal half of the gall is more swollen than the upper half. When fresh the gall is yellow or partly red, and more or less glutinous; when dry it is generally brownish yellow, and loses its stickiness. In section it exhibits a large cavity. The thin egg-shaped inner gall is here either attached to the base or to the point exactly opposite, but subsequently it sometimes appears quite detached. The second variety (C. coronata) has, on the whole, the fundamental form of the preceding. Its lower half is, however, surmounted with a crown of recurved, shorter or longer, projections. That part of the gall which lies above the crown of thorns and bears the umbilic in its centre is generally more swollen than in the galls of the first form, so that the umbilic is far less conspicuous. This gall is generally of a lighter tinge, and far more glutinous and glossy. A section exhibits a thicker layer of moderately hard gall-substance and a smaller cavity, which sometimes occurs as a circular passage round the inner gall, that adheres to the base by means of a very short, or somewhat longer, pedicle. It sometimes happens, however, that the inner gall has only a basal attachment, and still the cavity is present, although smaller than in the first form. The third variety (C. mitrata), in spite of its different outward appearance, is the same species, but without a cavity in the interior. The base has a flat extension, but it generally adheres so tightly to the twig that the base becomes strongly recurved. From this roundly swollen base, which in mature galls is about a centimetre in diameter, projects a cone or a thick style-shaped part, rounded at the end and strongly umbilicated. The surface is smooth, of a brownish red colour, and moderately glutinous. It shows no cavity in the section, the inner gall everywhere closely adhering to the gall parenchyma. A fourth form, which I have twice met with, may be placed under the last variety, C. mitrata. It differs, however, in having several excrescences at its base, in its upper part forming a plain with several projections, and in its being larger in size (fig. 21 *d*). The first form is found on Quercus sessiliflora and Q. pedunculata; the second on Q. pubescens; the third on Q. sessiliflora. The imago, generally matured by the beginning of winter, emerges in the following March or beginning of April.—*G. L. Mayr.*

Five species of Synergus have been bred from the variable galls of this species, four of which, *viz.* Melanopus, Reinhardi, Pallicornis, and Vulgaris, emerge in the spring and summer of the second year; whilst Facialis is produced in the autumn of the first year. Ceroptres arator finds a home in this species, as in many others. As parasites we have Callimome abdominalis, C. regius, and two species of Megastigmus, *viz.* M. stigmaticans, *Fab.* (= giganteus, *Kollar*), and M. dorsalis, *Fab.* (= Bohemanni, *Ratz.*). The gall has not been found in Britain.—*E. A. Fitch.*

Fig. 22.



CYNIPS CORIARIA.

22. *Cynips coriaria*, Hart.—This species produces a gall which, in its shape, reminds one somewhat of the variety Coronata of the preceding species. The simplest and most regular specimens are hemispherical, with the convex part attached to the stem, and the broad disk recurved in the middle. From the junction between the disk and the convex surface, or from the disk itself, emanate many long projections, which taper off and point either towards the gall or from it. Occasionally several of these projections unite, and then they form a lamina terminating in several points. Other specimens are more or less spherical, and their projections irregular. A transverse section of the gall usually measures between one and two centimetres, exclusive of the projections, but specimens occur both larger and smaller; the average of the

projections varies from half to one centimetre. The gall is hard, brown, and not glutinous. It is chiefly remarkable in the section which exhibits many egg-shaped cells, in which the larvæ of the gall-flies live; these cells or inner galls are surrounded by the moderately hard, brown, gall-substance. It is found on Quercus pubescens, rarely on Q. sessiliflora, and is full grown in the autumn, but does not fall; therefore two-year old galls perforated with holes are often met with on the oaks. Herr von Haimhoffen, who has both described and figured this species in the 'Verhandlungen der Zoologisch-botanischen Gesellschaft,' 1867, page 527, states that when kept in a warm room the imagos emerged from December to the end of February, but those kept out of doors did not appear till the end of spring. From a gall which I collected on the 8th November, 1869, the first imago emerged on the 18th of the same month, and was followed by others during the next few days.—*G. L. Mayr.*

Three species of Synergus, *viz.* Melanopus, Pallidipennis, and Pallicornis, occur in the galls of this species; and Megastigmus dorsalis is parasitic on the Cynips larva.—*E. A. Fitch.*

Life-histories of Sawflies. Translated from the Dutch of Dr. S. C. Snellen van Vollenhoven by J. W. May, Esq.

(Continued from p. 52.)

NEMATUS APPENDICULATUS, *Hart.*

Imago: *Hartig, Blatt-und-Holzwespen*, p. 202, No. 34.

Larva undescribed.

Nematus niger, subnitidus, clypeo et pedibus pallide ochraceis, antennis subtus et alarum stigmate fuscescentibus.

I had from time to time seen on red-currant bushes a small green tenthredinous larva, which evidently belonged to a species of Nematus, but I had not taken any particular interest in the matter. The smallness of the larva, its green colour, the probability that it would only produce a yellow and black Nematus, whose number seems to be legion, the absence of anything remarkable in its habit and mode of living,—all these circumstances seemed to make the subject anything but attractive. At last, however, on a peculiarly favourable opportunity presenting itself for rearing the larva in question, I made up my mind to the task, and, as I had found a considerable number in my garden, I took some of them indoors for the purpose of examination and observation. This was on the 20th of June, 1867. Unfortunately, the larvæ were nearly, if not quite, full grown. I think, however, that I remember observing that the younger larvæ, which I had before seen, differed from the more advanced examples merely in size.

The head (fig. 3) was of the usual form, somewhat depressed anteriorly; its colour was grayish green, the eyes being placed in rather large, round, black spots; from each of these spots proceeded a brown line, narrowing gradually and going to the top of the head, where the lines joined. There were some small brown spots about the trophi, and the teeth of the mandibles were of the same colour. The body was rather long and slender (see figs. 1, 2), and had altogether twenty legs. Above the line of the tracheæ the body was strongly wrinkled; I counted five folds on each segment. The 1st segment, the borders of the stigmata, the middle and posterior legs, the 11th segment, and the anal valve, were of a green-yellow tint; the remainder was green. On either side of the neck behind the head on a level with the eye was a fine black curved line, like a chevron reversed; a similar mark occurred above each thoracic leg (fig. 4); the claws of these were brown.

The little animals were nearly two centimetres long; their usual position was at full length along the edge of the leaf, the posterior segments being slightly curved, as shown at fig. 1; less frequently they were observed in the curved position of fig. 2, this being otherwise the usual posture of many species of Nematus. When they were full grown they descended from the leaves to the ground, where they spun up, under cover of some of the fallen leaves, in little shining, brown cocoons, some being of a paler tint than the others. Their original colour and appearance is shown at fig. 5. The cocoons in question were single, and between six and seven millemetres long. On the 16th of the following July I found two females had made their appearance in the jar in which I kept the larvæ and cocoons; fig. 6 is taken from one of these. Out of the whole number eight imagos were reared; these were all females. I should not have known the male, which Hartig, *loc. cit.*, has also not described, had it not been that Mr. C. Ritsema had taken one (on the 8th of May, 1868) at the Bolwerk at Haarlem, and had presented it to the collection of our Society. The following is a description of the female:—Length about four millemetres, expansion eleven millemetres. Body short and compressed, the abdomen rather broad, and the penultimate segments somewhat high; thereby differing in form from many other Nemati. Head and body shining, and of a black tint, more or less tending to brown. The head and the back of the thorax are thickly clothed with very short dark gray hairs. The antennæ are slender and filiform, more than half as long as the body; in some individuals entirely black; but in most cases ferruginous on the under side. The clypeus, above the labrum, truncate; labrum, base of mandibles and palpi reddish white. On the thorax the tegulæ are brown, and the cenchri gray. The wings are somewhat smoky, yet iridescent; the costal nervure and the stigma are of a pale brown tint, which might be described as tea-colour (see fig. 6). The legs are pale yellowish red, the tint of unripe yellow melon; they are darker in some individuals than in others. The bases of the coxæ and the middle of the femora are usually more or less brownish; in the posterior pair (fig. 7) the extremities of the tibial and of the tarsal joints are pale ferruginous.

The male differs in being much more slender, and, when looked at from above, having a longer head; also the abdomen is cylindrical, the anus being provided with two horizontal valves; added to this the antennæ are longer, being four-fifths of the length of the body; they are entirely ferruginous, with the exception of the upper surface of the first three joints. Further, the course of the nervures at the under side of the submarginal cells is somewhat different. And, lastly, the legs are a little longer, the femora without any brown colour, and the posterior tarsi nearly black.

I am not acquainted with the egg; I suppose it is concealed in wounds made in the veins of the leaf. The emergence of the imago in July and the capture of another in May point to two or more generations in the year.

NEMATUS SOLEA, *Voll.*

Larva and imago undescribed.

I place the description of this insect immediately after that of Nematus appendiculatus, on account of its agreement, in its different stages, with the latter species. It is new; at least I have not been able to find a description of it anywhere. Nevertheless, it may probably be Hartig's undescribed Nematus xanthophorus of his table in the first year of the "Stettiner Zeitung," with respect to which paper it is much to be regretted that it has never been further worked out. It may even be nothing more than the male of Nematus Laricis of Hartig, with which he was unacquainted.

I have called this species Solea, because, like the sole, it is very dark on the upper surface and white on the under. The larva, which lives on the larch (Larix), is full grown in the middle of July (I received full-grown examples on the 26th of July, 1861, from the late D. J. Wttewaall), and has twenty legs; it is entirely sap-green on the back and sides. The head is very shining, somewhat broader than in the former species, feuille-morte in colour, with two rather large, round, black spots, in which the eyes are placed. The six anterior legs are glassy green, with brown claws. The skin of the back is very strongly wrinkled; the four or five anterior segments have on each two transverse rows of extremely fine spines. The last two segments are of a paler and yellower tint; the ventral surface, together with the abdominal and anal legs, are of the same sordid yellow colour.

On the 27th of July these larvæ began to spin up among the needles lying at the bottom of the glass in which they were kept. The cocoon was shining, pale brown, and of the same size as that of the former species. It was not more than ten days before the imago appeared (see figs. *d*, *e*). My cocoons only produced one imago, a male, which was about four millemetres long. The head was rather broad, somewhat projecting between the eyes and the clypeus and labrum. Eyes pretty large, oval, brown-gray; ocelli very widely separated. The head was pale ochre-gray, with a broad quadrangular spot on the vertex, of a sordid black tint. Antennæ, considering the genus, thick and short, pale ferruginous, with a brown glow on the upper side, the first two joints having black lines on the upper surface. Abdomen pale ochreous below, sordid black on the dorsum, excepting the margins of the prothorax, the tubercles, and the margins of the abdomen. The scutellum has a reddish glow. The legs are of the same colour as the sternum and ventral surface, only the base of the four posterior coxæ have a black spot, and the posterior tarsi are blackish on the upper surface. The wings are transparent, the costa and stigma being pale yellow.

I am not acquainted with the female, or with the eggs or the young larvæ.

Micro-Lepidoptera Taken or Reared in 1874.

By Mr. W. Machin.

I have written out the following list of insects, which I have either reared from the larva or caught on the wing, and trust you may deem some of them of sufficient interest to find a place in the 'Entomologist.'

Depressaria depressella.—Bred in October from seed-heads of Daucus Carota, collected at Southend in September.

Lemnatophila phryganella.—Both sexes were reared in October, from larvæ found at Loughton, in July, on oak and hawthorn.

Exapate gelatella.—Both sexes were reared in November, from larvæ found at Loughton, in August, on hawthorn.

Tortricodes hyemana.—In February a number of strongly-marked specimens were reared from larvæ found on hawthorn, at Loughton, in autumn.

Epigraphia Steinkellneriella.—Reared in March, from larvæ found at Loughton on blackthorn, in autumn.

Elachista subobscurella.—Was flying rather commonly on warm evenings, at the end of April, on Wanstead Flats.

Corycia temerata and Swammerdamia comptella.—Were reared in April, from larvæ found on blackthorn, at Loughton, in the autumn.

Depressaria assimilella.—Was abundant in the larva-state between united stems of broom, in April, at Wanstead.

Chesias obliquaria.—Appeared occasionally in my breeding-cage, from the beginning of May till the 6th of August, from larvæ taken in the autumn.

H. Senecionis.—Bred sparingly in May, from seed-heads of ragwort.

Eupœcilia udana.—Bred sparingly in May, from the flower-stems of Alisma Plantago, collected during the winter.

Pseudopterpna cytisaria, Depressaria costosella, and Coleophora genistæcolella.—The larvæ were very plentiful on Genista Anglica, at Loughton, in the middle of May; and Depressaria atomella, sparingly.

Apamea unanimis.—Five specimens were reared at the end of May, from larvæ found among grass at the roots of willows, in April.

Dicrorampha plumbagana.—Flew in some numbers along the banks of the main road at Low Leyton, on warm evenings, at the end of May.

Hadena Genistæ.—Reared three beautiful specimens from larvæ beaten from broom, at Wanstead, in August.

Grapholita obtusana and Laverna lacteella.—The former was common, and the latter rare, at Fair Mead Bottom, in the middle of June.

Harpipteryx scabrella.—Bred from larvæ beaten from hawthorn, at Loughton, in June.

Ypsolopha sylvella.—Bred from larvæ beaten from oak, at Loughton, beginning of July.

Harpipteryx nemorella.—Bred from larvæ beaten from honeysuckle, at Loughton, in June.

Enicostoma lobella.—Bred from larvæ beaten from blackthorn, at Loughton, in June.

Gelechia atriplicella.—Was reared in plenty from the seed-heads of both Atriplex and Chenopodium, collected in September; the first brood in June, the second in August, and the third in October.

Cucullia Gnaphalii.—A beautiful specimen was reared on the 26th June, from a larva found on golden-rod, near Sevenoaks, Kent, end of August.

Sesia chrysidiformis and S. ingratella.—Seven of the former and one of the latter were reared in July, from the roots of sorrel, collected at Folkestone, in April.

Ephippiphora fœneana (in some numbers) *and Dicrorampha simpliciana* (sparingly).—Were reared from roots of Artemisia vulgaris, collected at Darenth, in April.

Xanthosetia Zœgana.—A fine series were bred in July, from roots of Centaurea nigra, collected at Darenth, in April.

Nephopteryx angustella.—Was not uncommon, but very local, on horse-chestnut trees, at Hampstead, in June.

Peronea cristana.—I have again reared this species from larvæ found between united leaves of hawthorn, collected in July, at Loughton.

Ephippiphora nigricostana.—Two specimens emerged in July, from the roots of Stachys sylvatica, collected in March, at Loughton.

Semasia rufillana.—A fine series were bred in July, from seed-heads of wild carrot, collected at Southend, in September.

Scythropia cratægella.—Larvæ in June and imagos in July, amongst blackthorn at Loughton, but rare.

Butalis chenopodiella.—Larvæ in plenty amongst Chenopodium, on a piece of waste ground at Wanstead, in August.

W. MACHIN.

22, Argyle Road, Carlton Square, N.E.
January 19, 1875.

Over the Fells in Summer, and Capture of Argynnis Niobe in North Lancashire. By C. S. GREGSON, Esq.

AT the end of July, 1871, I met my old friend J. B. Hodgkinson at Preston, and proceeded to Witherslack, in Westmoreland, on a collecting expedition, with head-quarters at the "Stanley Arms" there. On August 1st (insects generally being *passé* in the immediate neighbourhood) we went to Witherslack Hall woods: here also we found Emmelesia tæniata was over, and I determined to put a long-intended expedition into force, namely, to prospect the *terra incognita* between the shores of Morecambe Bay and Hawkshead, beyond Windermere Lake. Taking a hearty farewell of my good friend I pressed upwards through the woods (there very thick), until I found open ground at the top of the wood, and saw Argynnis Adippe in plenty around me. Here I amused myself until half-past 9 A.M. taking Adippe, examining them for varieties, and watching them fly, as I set the normal forms at liberty. Afterwards I pushed on, keeping away to the left of the glorious ground behind Whitbarrow Scarr, another unknown entomological wooded district, which has never yet been asked to give up its insect-treasures, though some of my botanical friends have borrowed specimens of its little primrose. Looking across towards the opposite wooded ridge, beyond the valley, I observed a slight depression in the trees, six or seven miles away, apparently, and made for it, following the cart-roads when they seemed to lead that way, and leaving them when they did not (nobody interferes with anyone crossing the fells or fields in that district): they seem rather glad to see you, especially if you have any news or tobacco to impart to them. Whilst on my way to the ridge I hardly saw an insect, but once over its crown, and into a recently-cut hoopwood copse, Adippe greeted me all round, now here, now there, in the wood, and on the road-sides: such a sight I had never seen before. The fiercely hot day and want of water forced me to leave, after I had caught and looked at nearly a hundred specimens; and the sight of Windermere Lake, some miles below me, made me crave for water more than ever. Pushing on I crossed the lake, drinking as I went, and refreshed at the Ferry Hotel; thence up the zigzag road, leading to the village of Sawrey, I turned down the lane leading to the foot of Easthwaite Lake, crossed the bridge and through the plantation, and was in the Devil's Gallop: here Adippe again appeared. Whilst I was looking at the umbelliferous flowers for Trycheris mediana (here very abundant and fine) one alighted under my nose on my net, and I again took a great many for examination. Whilst so engaged a lady on horseback stopped to ask if I had found anything valuable; she seemed to know butterflies pretty well, and I showed her an extraordinary well silver-marked Adippe, illustrative of my seeming nonsensical—hard run after a butterfly, catching it, and then letting it fly—undertaking. Whilst so doing a specimen alighted on a flower of Angelica sylvestris close to us, which I secured, and showed her it as being entirely without silver markings; and this specimen, which I thought only a variety of Adippe, on being submitted to our good friend Henry Doubleday, for his opinion, is pronounced by him to be a veritable Argynnis Niobe.

I have been particular about describing the way to the Gallop from Windermere Ferry Hotel, because some people doubt there being such a place: let anybody ask at the ferry, not for the Devil's Gallop (the ferry people are not natives), but for Easthwaite Lake, and anybody near there will point out the Gallop; and when once our friends are in it they will be sorry for those who ever had to gallop over such rough land.

When at supper at Hawkshead I learned that the lady on the gray horse was Miss Aglionby, a daughter of Judge Aglionby, a lady who lives near, and is highly beloved in the district.

I need hardly say that I took a good many ordinary Lepidopterous insects that evening; but the best were Eucosmia undularia, anywhere in and near the Gallop where sallows grew, and seventeen Sericoris signatana around one tall sloe bush. I shall long remember my twelve hours' ramble over the Fells in August, 1871.

C. S. Gregson.

Captures in the New Forest in May and July, 1874.

By Bernard Cooper, Esq.

In company with my friend W. J. Argent, I spent a short portion of each of these months entomologising in the New Forest. Our object being as much the enjoyment of desultory rambles as the capture of rarities, many species will be found absent from the appended list, which ought otherwise to have been obtained; nevertheless, a few notes at this dull season of the year may not be unacceptable to some of your readers.

Leucophasia Sinapis.—Of this species we took both the spring and summer broods. It is generally distributed throughout the grassy rides of the plantations, but is not common. The second brood (the *var.* Diniensis of Boisduval) is easily distinguishable from the first by the isolation of the dusky apical blotch. Some three or four females of the second brood which we took are pure white, without any markings whatever (mentioned in Kirby as the *var.* Erysimi, *Bkh.*). This, I presume, is the variety referred to by your correspondent (Entom. viii. 21) and by Mr. Doubleday (Entom. viii. 37).

Gonepteryx Rhamni.—Flying lazily among the flower-heads in July, in swarms.

Colias Edusa.—Saw one on the 18th July in the new enclosure.

Argynnis Paphia.—Common everywhere in the neighbourhood of brambles. As an instance of its abundance I may mention that a single sweep of the net on one occasion enclosed four, and on another three, specimens. Took more than a dozen fine specimens of the *var.* Valezina, besides several more or less torn.

Argynnis Aglaia and Adippe.—More local, and much less common than the preceding; frequenting the blossoms of Centaurea nigra in the flowery rides. Took a lovely series of each.

Argynnis Euphrosyne and Selene.—Common.

Vanessa Polychloros.—A few.

Limenitis Sibylla.—More common than in some previous years, being generally distributed throughout most of the oak woods. The best time to watch the evolutions of this graceful insect is in the early morning, when the flight is much lower than in the after part of the day.

Thecla Rubi.—A few specimens; end of May.

T. Quercus.—Very common.

Lycæna Ægon.—Abundant on the heaths.

L. Argiolus.—One specimen only; July.

Nemeobius Lucina.—A few; end of May.

Thanaos Tages, Hesperia Sylvanus and Linea.—All very common.

Moths, either on the wing or at sugar, were conspicuous by their absence. Whether owing to unfavourable weather, or to a scarcity of insects, or to a combination of both, it is certain that very little was seen on the wing after dusk. Diphthera Orion had been taken plentifully in June; and Thyatira Batis and Derasa were common; but more than once had we to leave the sugar without having seen a single specimen. The following is a list of the principal moths obtained:—

Lithosia quadra.—Two at rest; two at sugar.

L. aureola and L. helveola.—Several.

Calligenia miniata.—Very common.

Euthemonia russula.—A few on the heaths in May.

Liparis monacha.—Common in July.

Nemoria viridata.—About half a dozen stirred out in the daytime; end of May.

Boarmia consortaria and Tephrosia consonaria.—Several; end of May.

Ephyra trilinearia.—Several.

Epione advenaria.—Several; end of May.

Cleora lichenaria.—Several.

C. glabraria.—One.

Minoa euphorbiata.—Common.

Pseudopterpna cytisaria.—Common.

Selidosema plumaria.—About forty on the heaths.

Tephrosia biundularia.—Several.

Scotosia undulata.—One.

Melanthia albicillata.—Several.

Thyatira batis and T. derasa.—Common; the former in good condition from end of May to end of July.

Acronycta Ligustri, A. tridens, Cymatophora fluctuosa, Triphæna fimbria, and Acosmetia caliginosa.—Several.

Anarta Myrtilli, Hadena Genistæ, Euclidia glyphica, E. Mi, and Catocala promissa.—About a dozen of each.

Catocala sponsa.—A few.

Larva-beating was more productive; and, among others, I obtained two Stauropus Fagi (both of which have changed to pupæ); besides several of Notodonta dodonæa, Chaonia, Dromedarius, Dictæoides and Camelina, Diphthera Orion, Acronycta leporina, Amphydasis prodromaria, Orgyia pudibunda, Tephrosia extersaria, Boarmia consortaria, Tæniocampa miniosa, &c.

BERNARD COOPER.

Higham Hill, Walthamstow.

Entomological Notes, Captures, &c.

Variety of Lycæna Phlæas.—In August, 1873, I obtained a very good specimen of the pale variety of Lycæna Phlæas. All those portions of the wings which are usually red were a light cream-colour on the upper side; the under side is a dull stone-colour, instead of reddish brown as in the type, which it resembles, however, in all other respects, as far as I have observed. Is this variety of common occurrence? It is mentioned in Newman's 'British Butterflies,' but is the first specimen I have ever seen myself, nor have I seen a report of its capture lately. I may add the insect was taken by my brother in a lane near Chatteris.—*A. Harold Ruston; Aylesby House, Chatteris, February* 17, 1875.

Eupithecia Knautiata.—Perhaps you will allow me to make a few remarks on the Eupithecia which Mr. Gregson proposes to call Knautiata. In the first place I would point out that Mr. Gregson seems to have entirely overlooked Mr. Johnson's letter published in the 'Entomologist' for January (Entom. viii. 22); and to me the information this gentleman gives seems most important. He says, "that in former years heath grew abundantly at Bull's Hill." Now Mr. Gregson says that he has only found Knautiata at Bull's Hill, where at the present time there is no heath whatever; but at the other localities (Hawkshead, Witherslack, and Formby Moss), which he has visited, both the heath and Knautia arvensis were growing together; and on the heath only he found the Eupithecia minutata. From the above facts I gather that in former years both the heath and K. arvensis grew together at Bull's Hill (as well as at the other localities); but from causes, which Mr. Johnson explains, the heath was gradually exterminated, whereas, apparently, the Eupithecia was not, and, as its usual food failed, it took to K. arvensis; and hence the slight difference in appearance of both larva and imago. In the second place, as regards the difference in colour, I imagine this would be nothing more than natural from the change in food. In fact, in the colour of the larvæ of many Eupitheciæ there is scarcely any characteristic difference at all; and from my experience (although I have not bred them in hundreds or thousands) the chief agency in affecting their colour is their food. With regard to such characters as "stout," "thick," "stumpy," "short," &c., they can have but little value, unless the respective larvæ are compared at the same age. As far as I can judge, at present, I think Knautiata nothing more than a variety of Minutata; but if anyone will take the trouble to procure some eggs of Knautiata and feed the larvæ up entirely on heath, and also some eggs of the usual form of Minutata and feed them entirely on K. arvensis, we should, no doubt, arrive at a satisfactory result.—*George W. Bird; The Dartons, Dartford, Kent, February* 23, 1875.

Sugaring for Moths.—I have often searched and enquired as to *time* with regard to sugaring. In Greene's 'Insect-Hunter's Companion,' and in Knaggs' 'Lepidopterist's Guide,' are ample and excellent directions as to modes of mixing and exposing sugar. As to time of day, I find only the following notice in the latter, at p. 93:—"Many leave their sugared trees for home at too early an hour; it should be remembered that some species fly at one hour, others at another, and that a succession of visitors arrive from dusk to dawn." As I have a service at 8.15 A.M., nearly a mile from home, I seldom visit my trees after 11 P.M. My plan is to sugar just before dusk, and to visit the trees, which are about five minutes' walk from my house, every hour up to 9 P.M. I seldom find anything later than this; but I was once rewarded at 10 P.M. by two fine specimens of Cirrhœdia xerampelina. I have never met with any information as to time of year. During the last four years I have tried all periods, from January 1st to December 31st, and have come to the conclusion that, in this locality at least, it does not pay to sugar before August 15th or after November 30th. Last year sugar was unproductive; but a collector near here took many sugar-insects, if I may call them so, on ripe blackberries at night. I have not tried this plan myself, but if as effective as sugar it is certainly cheaper. I find few specimens after the moon has risen; very few, moon or no moon, if the wind is from the east, north-east, or north. My trees are on the south side of a wood of some extent. The greatest abundance occurs on dark, damp, warm, and showery nights, when there is a stiffish breeze from the south or south-west; only few if the night is calm, unless the weather is thundery. The trees should be visited every night, if possible, but need not be sugared oftener than every other night. Most likely there will be but few specimens until after the first week.—[*Rev.*] *Thomas E. Crallan; Hayward's Heath, March* 4, 1875.

[I shall be extremely obliged to my kind friend Mr. Doubleday if he will give entomologists the benefit of his long experience in this branch of insect-collecting, which he not merely originated, but brought to perfection.—*Edward Newman.*]

Emmelesia unifasciata at West Wickham.—I took a single specimen of Emmelesia unifasciata at light, at West Wickham, on the 14th August last (1874). This is, I believe, a new locality for this scarce species, though it has been before recorded from Forest Hill, and lately by Mr. Marshall (Entom. vii. 209) from Cheltenham.—*W. A. Forbes;* 35, *S. Castle Street, Edinburgh.*

Rare Lepidoptera near Limerick.—Amongst my captures last season have been Lobophora hexapterata, Eurymene dolobraria, Nonagria Typhæ, Sarrothripa Revayana, P. potentillana, and Gelechia cinerella; and also the insects which you determined to be Camptogamma fluviata and Oporabia filigrammaria. Mrs. Battersby may be interested to know that I took six specimens of Sarrothripa Revayana, and could have taken more, but was not aware of its rarity as an Irish insect.—*William Talbot; Tarbert, Limerick, March* 10, 1875.

Name of Insect.—In a letter received from my friend Mr. Francis Smith, R.N., of H.M.S. "Repulse," he tells me that at Payta, in Peru, he captured a very queer-looking, wingless bee, and asks me if I can tell him what it is. As I am quite unable to do so I shall be very glad if any entomologist will kindly reply in the pages of this periodical. Here is Mr. Smith's description of it:—"A most curious insect, resembling a bee in all respects, but entirely devoid of wings or any traces of them. It is extremely rapid in its movements on the ground, running, when chased, under loose stones, &c. At first I had the idea I had captured some sort of spider. It has *a long sting.* Colour bright metallic-red, and in size about as large as a small bluebottle." The italics are mine, for does not the "long sting" seem to suggest this creature may belong to the Ichneumonidæ, and the so-called sting be its ovipositor?—*Gervase F. Mathew; H.M.S. "Britannia," Dartmouth, March* 17, 1875.

[Will Mr. F. Smith, of the British Museum, kindly reply? No one else is so capable.—*Edward Newman.*]

The Bignell Beating-tray.—As my entomological friends have designated this little apparatus by the above name, and as my friend G. F. Mathew, R.N., has named it in the 'Entomologist' (Entom. viii. 14), and having had numerous enquiries about it and its construction, I will give the entomological world drawings and description of it. Fig. 1—

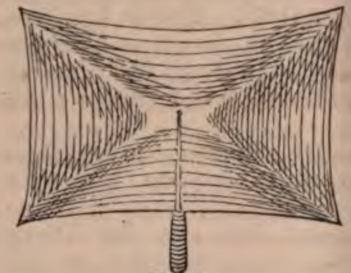


Fig 1.

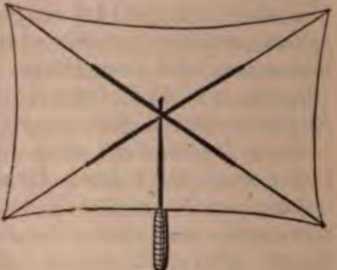


Fig 2.

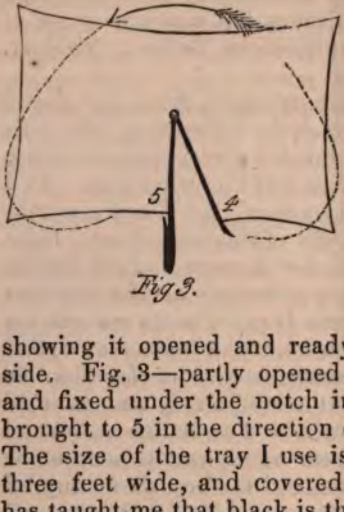


Fig 3.

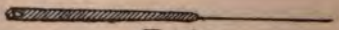


Fig 4

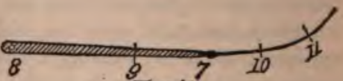


Fig 5.

showing it opened and ready for use. Fig. 2—the reverse side. Fig. 3—partly opened; 4 is to be brought over to 5, and fixed under the notch in handle; to close it, 4 is to be brought to 5 in the direction of the arrow. Figs. 4, 5—ribs. The size of the tray I use is four feet six inches long and three feet wide, and covered with black calico; experience has taught me that black is the best, having tried all colours. The rib, thirty-five and a half inches long, is made in two parts,—ash, twenty-two inches, and cane, thirteen and a half inches; the object in having part wood is to keep that portion stiff, and the cane is to make the necessary curve to form the tray; the cane is fastened to the wood by a brass hinge, over which is passed a taper ferrule; the other end of the wood is covered with a small ferrule, about one inch in length, with a hole through it, 8, figs. 4, 5: a hole in the handle the same way. A stout piece of wire is passed through the whole and rivetted up tight; the calico is fastened to the frame-work at 8, 9, 10, 11 (fig. 5); 11 is a piece of tape sown on, about five inches long, to receive the point of the cane, and a false hem is made to receive the handle at 4, 5 (fig. 3). The handle, twenty-five inches for the longest and twenty inches for the shortest, 4 (fig. 3). From the above description I think anyone can make it.—*G. C. Bignell; 6, Clarence Place, Stonehouse, Plymouth, January* 18, 1875.

Lepismodes inquilinus.—In connection with the new Lepisma, reported to have been exhibited by Mr. F. H. Ward at a recent meeting of the Entomological Society of London, I would take the liberty of asking whether the insect may not be that kitchen pest which I described in the 'Zoologist' for 1863 under the above name? The genus Lepismodes differs from Lepisma in having a delicate lateral fringe all round the body, and in wanting the silvery scales, which are so familiar to microscopists as test-objects.—*Edward Newman.*

Answers to Correspondents.

Arthur Rydon.—Forcing the Emergence of Lepidoptera from the Chrysalis, and difficulty of procuring Food for the Young Larvæ when Hatched.—I have lately been rearing moths by putting the pupæ in a hothouse. The day before yesterday two pale tussocks emerged, and to-day I killed them, thinking both were males; but, on examination, I found one was a female, and had laid several eggs. What I wish to know is when would these eggs emerge (not being kept in a hothouse), and what ought I to feed them on? I have also some lime-hawks and puss, duke of Burgundy fritillaries, privets, poplars, buff-tips, and spotted elephants. Can I get eggs from these, and could I rear them if I was very careful?

[If moths are compelled by any artificial process to emerge at any other than a natural and proper season, it follows as a matter of course that should eggs be procured from them, these also must hatch at an unnatural and unseasonable period of the year: there will be no possibility of obtaining proper food for them, and they will inevitably perish from starvation.—*Edward Newman.*]

R. J. S.—I enclose an insect, which I shall be glad if you will name for me. I am undecided whether it is Phibalapteryx lignata or Eubolia lineolata. The lines on the hind wings are very different to those of either of the above, as figured in Newman's 'British Moths.' This moth was taken on the top of a hill, in the neighbourhood of Portsea, about the middle of February.

[The insect is Eubolia lineolata.—*Edward Newman.*]

H. C. Hodges.—I regret that I am unable to give the title of a book on British Pyralides and Tortrices, excepting Stainton, with which you are already acquainted. I am not likely to write any more books on Natural History,—certainly none on Pyralides and Tortrices. I quite understand the difficulty of getting correct names, but it is scarcely reasonable to give our Lepidopterists the trouble of naming common insects, although many would kindly give an opinion on a few rare or critical insects.—*Edward Newman.*

Charles Mann.—English Entomological Correspondent desired for Wisconsin, U. S.—I am corresponding secretary of the Natural History Society of Wisconsin, and as such am trying to open a correspondence with entomologists in different parts of the world, who would be willing to exchange for specimens collected here, those they may be able to collect for us. Beetles and many other insects might be sent moist, as they come from the alcohol, in a tin box, or perhaps a wooden one. Butterflies could be folded in stiff paper, with folded wings. I should be glad of the addresses of collectors in some of the English colonies or other distant places, and one or two collectors in England. I should also like a correspondent in England who would give me coins for insects or valuable minerals, or perhaps even prepared skins of our native birds. It is in the interests of science that I venture to address you, and it is on that plea that I hope it will receive your attention.

[As the 'Entomologist' circulates in every part of the world, it will be the better plan for naturalists, who seek such correspondence and exchange, to correspond directly with Mr. Mann, without the intervention or assistance of any third person.—*Edward Newman.*]

Death of Dr. Gray.—John Edward Gray, for fifty years an active officer of the Zoological Department of the British Museum, from which Institution he retired only in last December, succumbed to the inclemency of an English spring on Sunday the 7th of the present month (March) having just completed his seventy-fifth year. He was the son of Samuel Frederick Gray, who acquired considerable notoriety as a botanist from his having been the first to introduce Jussieu's classification of plants into this country, in a work intituled "The Natural Arrangement of British Plants," Dr. Gray himself strongly advocating the new system. The reception of the work was not altogether favourable, for at that time there was a very prevalent feeling, especially in the Linnean Society, against the introduction into the Science of Botany of any other than the sexual and numerical classification promulgated by Linneus. It was probably under these circumstances that Dr. Gray turned his attention more exclusively to Zoology, and in 1824, through the influence of the late John George Children, he was appointed an assistant in the Zoological Department of the British Museum; and in 1840, on the retirement of Mr. Children, he succeeded to the post of Keeper of the Zoological collection to that establishment.

Few naturalists now living will recollect the meagre state of this collection when Dr. Gray's services were first acquired; but those who, like myself, can look thus far back into the past, will bear willing testimony to the vast improvements which took place under his auspices: his labours were energetic and unremitting, and he eventually succeeded in obtaining for our national collection a reputation second to none in Europe. And here it must be observed that this eminent success is not to be attributed *solely* to Dr. Gray's incessant zeal in advocating the purchase by the trustees of collections made by our fellow-countrymen and others in all parts of the world: seeing that whenever he experienced a difficulty in obtaining the necessary supplies from Parliamentary grants, he did not hesitate to apply his own income to the acquisition of a specimen or a collection which he considered it important that the nation should possess. Indeed the growth of the collection under so liberal a *régime* outran the means of accommodation, and the crowded state of the shelves soon tended in some degree to preclude the careful examination of the multitudinous objects assembled.

The task of describing and cataloguing these vast collections followed as a matter of course. This was a most Herculean labour, and one that could not be accomplished single-handed. Dr. Gray therefore engaged the assistance and co-operation of the most advanced zoologists in every department of the Science. Thus, through his instrumentality, we have *eight* catalogues of sucklers, *three* of sucklers and birds together, *nine* of birds, *six* of reptiles, and *twelve* of fishes. It is, however, in entomology that he has rendered the greatest service to Science, having issued *nine* catalogues of Coleoptera, *five* of Orthoptera, *five* of Neuroptera, *ten* of Hemiptera, *forty-one* of Lepidoptera, *seven* of Diptera, and *three* of Crustacea. In addition to these we have *sixteen* catalogues or lists of Molluscous, and four of Radiate animals. Again, we have a series of *twenty* catalogues of exclusively British animals; thus by separating the British from the general collections, the English student has the opportunity of acquiring with less labour a knowledge of the natural productions of his own country. This simple enumeration of catalogues exhibits more clearly than can be done by any words of mine, what Dr. Gray accomplished on behalf of Natural History in our country, but these catalogues by no means comprise the whole of his most useful labours in this direction. In the "Spicelegia Zoologica" he published original figures and short systematic descriptions of new and previously unfigured animals, and these were continued in the "Zoological Miscellany," a serial having the same style and objects. He also contributed the natural history portion of the voyages of the "Erebus and Terror," only lately completed. Of his various minor papers the list alone, published in 1852, occupies twenty pages in the "Bibliographia Zoologiæ;" and the Catalogue of the Royal Society enumerates no less than four hundred and ninety-seven papers from his ever-active pen.

Dr. Gray's descriptions are almost entirely confined to the exterior; it seemed his especial aim to seize on those differences which are the most obvious, and would be the first to be noticed by the student when he begins to turn his attention to the examination of species; and in that department he was successful and lucid. It was perhaps my misfortune to differ from him in his view of the paramount value of superficial character, believing, as I do, that we should first associate those animals which agree in intimate, internal, and physiological characters, and only utilizc differences of the exterior or extremities in the smaller groups as of genera or species. As an instance of the tendency I have mentioned, I believe that Dr. Gray to the last persisted in treating the marsupial animals as a section of the Feræ, or beasts of prey, whilst others have considered these wonderful creatures as forming a series equally important with the placental series, and in many instances parallel therewith. In this view of the primary importance of the marsupial character I always concurred, and hence it was my misfortune to differ from one whose knowledge and industry had placed him at the very head of the Science. It seems desirable to add that in the expression of this view as to the comparatively minor importance of the marsupial character, Dr. Gray is supported by the published works of six eminent zoologists enumerated by Mr. Waterhouse in his Natural History of "Marsupialia, or Pouched Animals:" these are Storr, Illiger, Frederic Cuvier, Bennett, Swainson, and Ogilby. In the work to which I have alluded Mr. Waterhouse has expressed an opinion opposed to that of the eminent zoologists I have mentioned, but in exact accordance with my own. As a noteworthy exception to the propensity to avail himself of external characters in his descriptions, I am delighted to invite attention to the use which Dr. Gray made of the skull in some of his most valuable contributions to Zoology. I would particularly mention three very recent instances. The first appears in the 'Zoologist' for December, 1872, and is intituled "The Seals that permanently reside in or occasionally visit the British Islands" (S. S. 3333). The second is in the same journal for January and continued in March, 1873, and intituled "A Catalogue of the Whales and Dolphins inhabiting or incidentally visiting the seas surrounding the British

Islands" (S. S. 3357 and S. S. 3421): and the *third*, which exceeds both the others in permanent value and in richness of illustration (being accompanied by excellent figures of no less than forty-two skulls) is published as a separate volume intituled "Hand-list of the Edentate, Thickskinned, and Ruminant Mammals in the British Museum": it is dated 1873. These, the latest of Dr. Gray's labours—and it may truly be said of them *Finis coronat opus*—are wonderful examples of vigour of mind and energy of purpose, enduring to the very close of life.

In his domestic relations Dr. Gray was peculiarly happy: in 1826 he married Emma Maria Gray, the widow of a cousin, and a lady equally remarkable for her amiable disposition, her numerous accomplishments, and for the cordial and indefatigable assistance she rendered to her husband in his scientific pursuits. As an artist her faithful delineation of molluscous animals for the use of students, is above all praise. Few naturalists had previously ventured beyond the shell, and I am old enough to recollect the time when to prefer the anatomical details of the somewhat uninviting *animal* to its elegantly formed and often brilliantly coloured *dwelling*, would have been considered an indication of the worst possible taste. Mrs. Gray thought otherwise, and her judgment has been accepted by all who have followed her in the study of these little-known objects. Her admirable drawings were of infinite assistance to her husband.

The mortal remains of the naturalist were interred at Lewisham old church on Saturday the 13th of March. The funeral rites were performed in the simplest and most unostentatious manner. A plain hearse conveyed the coffin, and was followed by two private carriages containing the mourners, who were few in number, and confined to the immediate relatives of the deceased and one or two of his most intimate friends. By Dr. Gray's emphatic and repeated request no mourning coaches were employed. Dr. Günther, Mr. Frederick Smith, Mr. Busk, together with Dr. Gray's two old Museum attendants, Mr. Gerrard and Mr. J. Saunders, stood round the grave, and thus paid the last tribute of respect to one of the greatest zoologists that this country has ever produced.—*Edward Newman.*

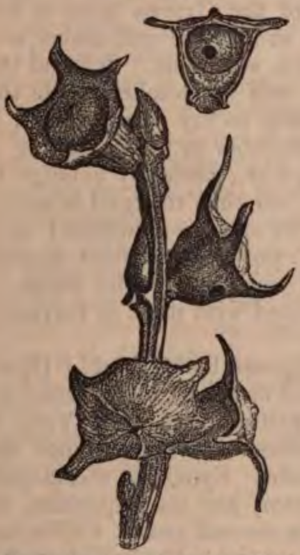
THE ENTOMOLOGIST.

No. 142.] MAY, MDCCCLXXV. [PRICE 6d.

Descriptions of Oak-galls. Translated from Dr. G. L. MAYR'S 'Die Mitteleuropäischen Eichengallen' by Mrs. HUBERT HERKOMER *née* WEISE.

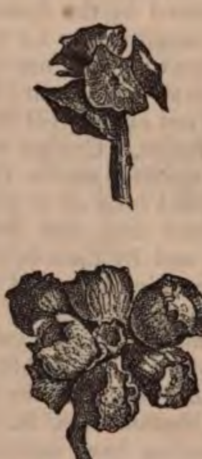
(Continued from p. 76.)

Fig. 23.



CYNIPS POLYCERA (and in section).

Fig. 23 *a*.



Id. var. SUBTERRANEA.

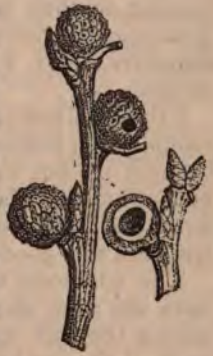
23. *Cynips polycera*, Gir.—This gall is found in the axils of the leaves of shrubby specimens of Quercus pubescens, rarely on Q. sessiliflora and Q. pedunculata. In the centre it measures one centimetre in length, and is of an inverted conical shape.

The blunt point of the cone by which it is attached to the twig is somewhat flattened; the base of the cone, *viz.* the upper end of the gall, forms an almost circular, flat disk, in the centre of which there is often found a small excrescence. This disk is one centimetre in diameter, and has a well-defined border, often quite sharp; on this border there are generally several projections pointing outwards, and terminating in a sharpish point. At first the gall is green, but later turns to a yellowish brown. In the section beneath the disk there is a large, spherical inner gall, coarsely striated, thick-walled, and hard, which touches the moderately hard gall-substance on all sides, but is not joined to it. If that part of the gall near the twig (just below the inner gall) contains parasitic larvæ, then the gall assumes a cylindrical shape, as the parasites occasion a swelling in the lower part of the gall. In most cases the development of the Cynips larva is not disturbed by the Synergus larva, so that the gall-maker and the parasite may be bred from the same gall. I found the Cynips quite mature in the first half of October, while the gall was still green; but, according to my observations, it does not emerge till the end of October or the beginning of November. Cynips subterranea, *Gir.*, certainly belongs to this species, as Dr. Giraud tells me that this gall is only a modified form of C. polycera. The specimens which I have received from him differ from C. polycera in their smaller size, and by their being attached to under-ground twigs, or those which are more or less covered with moss or leaves.—*G. L. Mayr.*

This remarkable gall was first figured by Malpighi ('Opera Omnia,' i. 123, fig. 50), but was not noticed from his time till Giraud described the insect and gall anew in 1859 (Verh. d. zool.-botan. Ges. ix. 340). Neither this species nor the preceding have occurred in Britain. Synergus melanopus, S. pallicornis, and Ceroptres arator, are its inquilines, all appearing in April and May of the second year. Callimome regius and Megastigmus dorsalis are probably both parasitic on the gall-maker. Dr. Mayr notices the interesting fact that the position of the Synergus does not interfere with the gall-maker: this is contrary to the history of the greater number of galls, as in most cases the inquilines (Synergi) cause the death of the Cynips, either by its imprisonment or by abstracting the vegetal substance which serves for its support. In our common marble, or Devonshire, gall, produced by Cynips Kollari, both cases occur, (1) the inquilines living gregariously round the inner gall and so destroying the Cynips, or (2) the inquiline living singly in a small cell in the parenchyma, generally near the petiole or base of the gall: when this is the case the Synergus and Cynips may be bred from the same gall. Which particular species of Synergus this refers to I believe has not been satisfactorily determined, but our knowledge of the economy of the different insects inhabiting galls is very unsatisfactory at present.—*E. A. Fitch.*

24. *Cynips caliciformis*, Gir.—The spherical, pea-sized gall of this species is found in the axils of the leaves of Quercus pubescens, rarely in those of Q. sessiliflora or Q. pedunculata. Its brown (at first green) surface is beautifully faceted and closely covered with very short hairs, somewhat in the form of scales. Each facet is either convex or nearly flat, and has in its centre a small shining, generally hairless, papilla. The section shows this layer of bark to be thin and united with the large, moderately thick-walled inner gall. The gall is not deciduous. I have not yet been able to obtain the gall-maker.—*G. L. Mayr.*

Fig. 24.



CYNIPS CALICIFORMIS (and in section).

This species is very rare on the Continent, and has not been found in Britain. Synergus melanopus, S. Reinhardi, and Ceroptres arator, occur in its gall.—*E. A. Fitch.*

Doings at Sallows. By G. F. MATHEW, Esq., R.N., F.L.S.

WRITING to several of my entomological correspondents lately, I have complained bitterly of the absence of sallows within easy reach of Dartmouth, for the few bushes I then knew of were either so tall or surrounded by such a mass of brushwood as to be entirely inaccessible. I have since, however, had reason to change my opinion, for on the 25th of last month, while travelling from Dartmouth to Torquay, I observed a small bush in profuse bloom growing by the edge of a wood on the banks of the Dart, and no great way from Dartmouth. The following afternoon I landed on the railway just abreast the ship, and walked up the line to have a look at the bush by daylight, and clear away any undergrowth that might be in the way. On the road I discovered another rather stunted bush growing in a small clearing in a dense wood of young oaks, and quite easy to get at. It looked perfection, as the flowers were very thick, just open, and of the brightest yellow, while the surrounding air was loaded with their rich perfume, and bees innumerable were feasting to their hearts' content. I felt certain that if the Tæniocampæ were well out, this bush would prove very attractive, and I should reap a rich harvest in the evening.

I then walked on to the other bush, which was on a steep, rough slope, just outside a wood, and I found thick brambles beneath it; but these I managed to clear away with a large pocket-knife. This bush was not so thickly covered with flowers as the other, but still there were plenty on it, and its situation was good.

The afternoon was soft and bright, with a gentle breeze from the west, and Tortricodes hyemana was flying merrily among the oak scrub, while Cicindela campestris disported itself on the dry banks. On palings Xylocampa lithoriza was unusually common, and I captured no less than fourteen fine specimens, and might have taken more had I wished to do so. They generally repose somewhere where the surrounding hue harmonizes so completely with their own markings that they are exceedingly difficult to see, and it requires a good eye and some practice to detect them, although occasionally I have taken them at rest on black-painted palings, where of course they were very conspicuous; but I have always fancied these must have been individuals whose faculties had been overcome by the previous evening's dissipation.

After dinner, at half-past seven, I left the ship again for the sallows. By this time the weather had changed, a thick fog having rolled in from the sea; but as it was still very mild, with scarcely a breath of wind blowing, I considered it a favourable night, for these damp, warm evenings are invariably the best. On reaching the first sallow (the one growing in the small clearing in the oak wood), lighting my lantern, and throwing its gleams on the bush, a sight met my gaze which I have never before experienced during the whole course of my entomological career. The blossoms were actually swarming with moths, and hundreds of others fluttered round struggling for a meal! On nearly every flower there were at least three moths; and the fresh arrivals, crowding on to those who had already partaken too freely, dislodged them, and they fell helplessly to the ground below, but appeared soon to recover, for I noticed them in numbers crawling up the branches in quest of another meal. This host of moths was composed chiefly of Tæniocampa cruda, although T. miniosa, T. munda, T. rubricosa, T. gothica, and T. stabilis, were present; besides Hoporina croceago, Xylocampa lithoriza, Cerastis Vaccinii, Eupithecia abbreviata, E. exiguata, E. pumilata, and Hybernia progemmaria. I took one of Mr. Bignell's beating-trays with me (not the patent improved pattern, described in the last number of the 'Entomologist,' p. 89); but having forgotten the tin-holder for the outriggers and handle it was, comparatively speaking, useless, although I used it, after a fashion, as a small sheet. Upon beating the bush the effect was perfectly marvellous, the sheet and ground around it being literally covered with moths; and in addition to this a plentiful supply of them were deposited on my head, shoulders, &c. As soon as they began to recover they flew in such crowds round my lantern as almost to obscure it, and once or twice they actually succeeded in getting inside, through the ventilating aperture at the top, and extinguished the light.

Bats were in great force, and so bold that they often took moths from the flowers right under my nose; and once or twice I fancy, from the vibrations of their wings close to my ears, that they must have selected a victim from my hat or shoulders.

Coleoptera were represented by numerous specimens of Dryops femorata, a species which, I believe, was formerly considered rare. Hymenoptera were not absent, for Bombus terrestris, too lazy or too tipsy to return home, had taken up its quarters for the night, deeply and snugly buried amidst the downy anthers of the flowers.

Several Tæniocampa cruda fell on to my sheet in the clutches of a pallid-hued spider; and on a log of wood lying on the ground I saw a centipede busily occupied sucking the juices of another, which it had doubtless captured while it was in a state of unconsciousness.

I reached the ship again at eleven o'clock, well pleased with my evening's captures; and by that time the fog had cleared away and the stars shone out brightly.

The next evening (the 27th) it was bright and mild, but with a strong breeze from the north-west; but as I intended to leave Dartmouth the following day, and should be away for a week or ten days, I thought I had better pay another visit to the sallows, as they would probably be *passé* by the time I returned. I found Tæniocampa cruda just as abundant as on the previous evening, and T. miniosa had considerably increased in numbers; but they were nearly all males, for out of twenty-eight I boxed, only two belonged to the opposite sex. I have noticed this is generally the case with Tæniocampæ. Hoporina croceago and Tæniocampa munda put in an appearance again; but my grandest capture for the evening was a fine Dasycampa rubiginea.

The result of the two evenings was as follows:—

Dasycampa rubiginea.—One female.

Hoporina croceago.—Eight females and one male.

Tæniocampa miniosa.—Twenty-eight males and two females. Could have taken many more of this species had I wished.

T. munda.—Three males; evidently only just coming out.

Xylina rhizolitha.—Two females.

Tæniocampa rubricosa, T. gothica, T. stabilis, and Cerastis Vaccinii.—Common.

Xylocampa lithoriza.—Several very dark varieties.

Eupithecia abbreviata, E. exiguata, E. pumilata, Hybernia progemmaria, Tortricodes hyemana, and Diurnea fagella.—Several.

Tæniocampa cruda.—In prodigious numbers, and I selected several varieties.

Of the above Hoporina croceago, Xylina rhizolitha, Tæniocampa rubricosa, T. gothica, and Xylocampa lithoriza, have been good enough to supply me with eggs; and I hope on my return to H.M.S. "Britannia," at Dartmouth, I shall find that Dasycampa rubiginea has done so also. But I may as well observe here, to prevent disappointment or the trouble of correspondence, that any duplicate eggs I may have of the above are all promised. It is strange that Tæniocampa instabilis, which is supposed to be "generally common and distributed," did not appear. Perhaps I shall see it later on in the season.

GERVASE F. MATHEW.

Instow, North Devon,
April 3, 1875.

Collecting as it was, and as it now is. By H. R. Cox, Esq.

COLLECTING is at present carried on very differently from how it was fifteen or twenty years ago. It is now much harder work than it was then, owing to the great number there are in the field. So far so good; but (which is much to be lamented) the good old free spirit of collecting is rarely to be found. Years ago, when a few entomologists started on a day's ruralizing, what unbiassed delight was experienced and evinced by us all! We started at early morn, intent on one object,—a day's thorough and innocent enjoyment. If one of our number captured a rarity we *all* were pleased; how we congratulated him, and loved to admire his specimen! If the rest of us were unfortunate there was no grumbling, no unpleasant exhibition of the "green-eyed monster;" there were no insinuations of Mr. Dealer So-and-so having that season imported a few gross of continental pupæ, and of having placed them in the woods for development, with a view to "making" them "British."

The object was, then, principally a day's innocent pleasure, and not so much with a view to amassing a large number of specimens in the shortest possible time. We want some of that collecting spirit now, for the *pleasure* of entomological rambles is comparatively little sought after; it is, "Who has the largest collection?" And much to the disgrace to many of our time, if collectors cannot get their coveted specimens by honest exertions, they will cheat in exchanging (or "bartering," as one of our best Lepidopterists facetiously termed it); or else procure foreign specimens, and insert them as British. Shame on these collectors; their originally pure pursuit is getting more dishonest than English horse-dealing.

A proof of the deterioration of the manners of most of our collectors is that they are now generally considered, by the non-entomological public, as persons of questionable character. A gentleman, maybe perhaps one of large independent property, or perhaps a "reverend divine," is staying with his family at a village; ere he exhibits his deadly weapons he is considered quite *comme il faut*, but let him once show his amusement he is immediately dubbed as "only a fly-catcher;" he is snubbed by the world in general, and looked at by all as some one to be carefully avoided. This is no mere conjecture, as I have repeatedly of late noticed it in various parts of England.

While collecting last year, in the Hampshire woods, I came across a dealer that I well knew. On showing him my night's total captures at sugar, Mr. Z. remarked, with an indescribably sly chuckle: "Oh, yes! Ah! He, he! but the *other* box;" insinuating that I had another private fuller box in my pocket. This is not said against the *dealers;* by no means; but merely to show what little faith they now have in the word of amateurs, so much dissembling and deceit are there among them.

I knew a gentleman, of considerable standing in the entomological world, who succeeded in obtaining from a boy a somewhat mutilated specimen of a very rare butterfly; it was caught at the end of the gentleman's garden. On exhibiting it at one of our entomological meetings, a whisper was immediately started insinuating that it was very much like an imported German specimen; this remark soon developed itself in quiet corners into "decidedly German!" All this shows there is in the present day much deception among collectors.

Those who may chance to read these few hasty remarks will perhaps say: "What is the *use* of thus complaining?" To which I reply: "Can we not start a new clique of collectors, who, throwing aside all contamination they may have imbibed from the modern school, will follow the Science in its original and pure manner, arrange their gatherings for a day's sport, and collect or exchange in the style of the 'good old times?'"

H. Ramsay Cox.

Entomological Notes, Captures, &c.

Notes from Witherslack, near Grange.—In January last, tired of the monotony of winter, I took my bag and a few implements of the craft and started for Witherslack. At the worst period of the year, and in miserable weather, little could be done in Entomology; yet a fair quantity of the larvæ of Psychoides verhuellella, feeding in A. Ruta-muraria on the face of the rock opposite the inn, some Lithocolletes spun-up in oak leaves, a few chrysalides from under moss on trees, and a sackful of dead leaves of various species, will no doubt reward the expedition later on in the year. This plan of collecting large quantities of leaves, and keeping them until at least midsummer, will be found to repay a trial, especially by a Micro-Lepidopterist,—Nepticulæ, Lithocolletes, Incurvariæ, and plenty of hybernating larvæ, being secured, which could not otherwise be easily obtained. The months of January and July, in Witherslack, present indeed a marked contrast; in the latter, everything that could be desired by artist, botanist, or entomologist. Rich in insects, plants, and scenery, the lover of Nature, having once rambled through the woods of Ulpha, basked in the afternoon sun in the "Plantation," or climbed the steep of Whitbarrow, must indeed be fastidious if dissatisfied. But especially is this the Paradise of the Micro-Lepidopterist, the various nature of the soil and rocks favouring the growth of the most diverse species of plants, and the broken character of the district affording sheltered places for research in the most unfavourable weather. Small plantations of oak, birch, mountain-ash, sallow, buckthorn, and various kinds of fir, break the monotony of a large expanse of peat, covered with heather and Myrica Gale, over which rise at intervals little hills of limestone, with plants peculiar to themselves, and affording a distant prospect of Morecambe Bay. Recollections of the happy hours passed here with a friend, and hopes for the coming future on the ground so well known, yet so exhaustless, made my trip as pleasant as according to general opinion it would be disagreeable. Later on in the season I hope to be able to send a few remarks on the Lepidoptera of this district, not confining myself to the captures of any particular year, but including the total results of many an expedition. In this Mr. Hodgkinson, who has taken so many species in this locality, and has made it his head-quarters, has promised to assist; and by far the greater share of information will be due to the patience and perseverance he for so many years has shown in the pursuit of Entomology. *J. H. Threlfall; 17, Ribblesdale Place, Preston.*

New Forest Insects (Entom. viii. 84).—I was surprised in reading Mr. B. Cooper's interesting list of New Forest captures in 1874 to notice that he speaks of the scarcity in that year of certain species. I will not trouble your readers with a list of my captures, as it would nearly be a repetition of Mr. Cooper's, but will merely say I found Leucophasia Sinapis *decidedly* common, and not so local as in most seasons. I easily captured two dozen specimens in an hour. I find the nearly white variety equally common in *both broods.* Limenitis Sibylla, though pretty common, was not nearly so plentiful as in the year 1869, when it swarmed in every wood here. Lycæna Argiolus was pretty common; I took twenty-six specimens; and of Nemeobius Lucina about twenty. The "new enclosure" is a somewhat vague term, as there are so many new ones. I have observed that in whatever direction one is collecting, the "natives," in giving instructions, invariably mention a "new enclosure." The "natives" are getting so entomological here that they can nearly always tell what species one is searching for, *i.e.* when they know the particular locality the "fly-ketcherr" is going to: they always encourage the collector by telling him, "You'll ketch *he* there." I noticed Colias Edusa and C. Hyale within half a mile of Lyndhurst in 1869, but have not seen either species since.—*H. Ramsay Cox; Lyndhurst.*

Sugaring for Moths (Entom. viii. 88).—I do not know that I can give Mr. Crallan much information, that will be new to him, about sugaring trees for moths, but, in the first place, I may say that there is always some uncertainty attending it, moths being frequently very abundant one night, while on another, apparently equally favourable, scarcely any will be seen. The sugar should always be applied to the trees before sunset, and, when practicable, it should be put on warm, as the scent is much more powerful than when it is applied cold. The greatest number of moths will generally be found about three quarters of an hour after sunset, and in spring and autumn but few will be found after ten o'clock. Many species visit the sugar about an hour before sunrise in the morning. Sugar is almost useless in the neighbourhood of lime-trees when they are in bloom, and also when there is much honeydew. There is a row of seventeen lime-trees in the field adjoining my garden, and I have sugared the trunks for more than thirty years in every month, except the four winter ones,—November, December, January, and February. Upon these trees I have captured nearly every Noctua which occurs in this neighbourhood.—*Henry Doubleday; Epping, April* 21, 1875.

[I am sure entomologists will be much obliged to Mr. Doubleday for these notes. I believe his experience is greater than that of any other entomologist living. I may add, as it is usual for every entomologist to keep a diary of his captures, that the publication of these diaries, or excerpts from them, would be of extreme interest; but they should be prepared in a systematic, and I need not say a careful, manner. I will give an imaginary day:—"May 1st. Wind light, S.S.W. Temperature, 65° Fahr.; inclining to rain. Sugared at Loughton. Captures . . . ." The advantages of such diaries can scarcely be estimated too highly: coming from eight or nine hundred localities, not only would they show us the exact range of a species, but would also teach us when to expect it, and under what atmospheric conditions.—*Edward Newman.*]

Description of the Larva of Eubolia peribolata.—The eggs were laid in a chip-box on the 18th September, 1874, and the larvæ left the egg-shells during the first week in October: they fed in Ulex Europæus (the common furze), almost exclusively on the blossoms, and after hybernation continued to feed until the end of April, when they had attained their full size; two or three have already spun up between the folds of some muslin in the breeding cage; two of the larvæ are now before me, full fed, yet exhibiting no change of colour or any disposition to spin. The larva rests in a perfectly straight position, but on being touched raises the anterior extremity, arching its back a little; its legs are then directed forwards, and closely appressed together, forming an almost continuous mass with the head. In crawling it makes a very decided arch, bending the body nearly double. Head prone, slightly narrower than the 2nd segment, into which it is partially received; it is sparingly beset with short, straight hairs. Body robust, more resembling that of a Leucania than that of a Geometer, a resemblance which is rather increased by its pale colour and longitudinal striping; every part of the body, but especially the anal extremity, bears short, straight, scattered hairs; a raised lateral skin-fold extends the whole length of the body, and the segmental and sectional divisions are clearly defined. Head and body putty-coloured; head with a few darker markings on each cheek, and five black ocelli on each side near the mouth; the space in which these ocelli are placed is paler than the rest of the head; the dorsal surface of the body has three compound stripes extending its entire length; the medio-dorsal is divided longitudinally into three divisions, the middle one of which is composed of a series of wood-brown markings, and these again are resolvable into mere dots; the lateral divisions are pale brown, bordered with a series of darker dots; the side stripes partake of the same triple character, and include the spiracles, which are circular and as black as jet; the ventral surface has a triple median stripe, the middle division of which is single, the external divisions double. I am indebted to Mr. W. A. Luff, of Mansell Street, Guernsey, for a supply of these previously-unknown larvæ. They were forwarded purposely that I might describe them in the 'Entomologist;' and I am much gratified to make this public acknowledgment of Mr. Luff's kindness.—*Edward Newman.*

Eupithecia extensaria taken in Yorkshire.—I received a Geometra from Mr. Prest, of York, this morning, which he wished me to name for him if I knew it. It is Eupithecia extensaria of Freyer, a very striking and rare species, which, I believe, has never before been captured out of Russia; this specimen is beautifully perfect. I have a male and female in poor condition, which were given to me by the late Julius Lederer, who said it was very rare. Dr. Staudinger has never had it for sale. It is figured by Herrich-Schæffer in his 'Geometræ,' figs. 124, 125: it is a very large species, and quite distinct from any other Eupithecia.—*Henry Doubleday; Epping, April* 16, 1875.

[Mr. Prest adds the following information:—"The specimen was taken by Mr. Sawyer, late of Hull, but now residing in York. He found it on some waste ground near Hull." Referring to Herrich-Schæffer, p. 122, I find he considers Extensaria as synonymous with Prolongaria of Zeller, published in the 'Isis' for 1846, p. 198. Guenée is of the same opinion, but adopts the name Prolongata. He gives Livonia, Southern Russia, Altai, as the localities where the species occurs. (Uran. et Phal. ii. 336.) I add below Herrich-Schæffer's specific description and Guenée's observations, both of which are interesting. "*Extensaria*, m., Suppl. 124, 125. Large, cinereous, with three simple, narrow, sharp-pointed, whitish fasciæ; the first and second sharply angled before the anterior margin, the third united at the tip of the wing with an undulated line." (H.-S. Geom. p. 122.) "A fine species, which cannot be confounded with any other, whether we regard its size and the very lanceolate form of its fore wings, or their nearly straight white bands on a yellow-gray ground; the first and second elbowed on the subcostal ray; the third forming a letter Y at the costa, whence it unites with the subterminal line, a gray band, acutely pointed at the extremity, intervening between them. The female is smaller than the male, and has still narrower wings. The specimens from Livonia are larger, and have a yellower tint, than those from the Altai." (Guenée, Uran. et Phal. ii. 336.) This is indeed a fine addition to our list of British Eupitheciæ, and I most heartily congratulate both Mr. Sawyer and Mr. Prest on the discovery. The latter gentleman has kindly given me more particulars of the locality where it was taken, but wishes me not to publish them at present.—*Edward Newman.*]

Eupithecia minutata Larvæ feeding on Achillea millefolium.—Fearing some collectors think that E. minutata is entirely a heath-feeder, a few years ago I took three or four larvæ feeding on the flowers of the yarrow, and as they had every appearance of a pug-larva I took very great care of them, in the hope that they might turn out to be a new pug, but to my disappointment they proved to be E. minutata. The larva was quite a dirty white colour; not pink, as when feeding on heath. These larvæ were collected nearly a mile from any heath.—*George Baker; 47, Kedleston Street, Derby.*

Description of the Larva of Coremia Quadrifasciata.—The caterpillar is clearly divided into two colours by a line running from the head to the extremity of the last pair of claspers; the spiracles lie in this line of division. The dorsal space is brown, variegated in shade from a light smoky brown to almost black, by interrupted lines running throughout its length, interspersed with numerous light-coloured blotches; four rows of minute warts run down this space, from each of which a short bristle is emitted. The head is slightly smaller than the 2nd segment, and of two shades of brown. The spiracles are black. The ventral space is of a very light brown, having a tinge of pink, and variegated, like the back, with blotches of a much lighter shade. The caterpillar thickens towards the middle, tapering gradually to each extremity. It assumes the form of an Ionic volute when annoyed. These larvæ were hatched on the 28th July from eggs deposited by a female captured a day or two previously. They have fed at various intervals throughout the winter on Galium Mollugo; and moulted for the last time about the middle of March.—[*Rev.*] *P. H. Jennings; Longfield Rectory, Gravesend*, *April* 13, 1875.

Leucania unipuncta or extranea at Lyndhurst.—I have received this morning from a son of Dr. Parker, of Lyndhurst, a fine specimen of Leucania extranea, which he says he took there last month. There is something very singular in the occurrence of a few specimens of this species here. Are they imported in any stage? It swarms in America, from Canada to Brazil; and a Leucania is also very common in Brazil, which appears but a slight variety of it.—*Henry Doubleday.* (In a letter to E. Newman.)

[The larva of this moth is the formidable "army-worm" of the United States. A great deal of information respecting it will be found in the 'American State Entomologist,' p. 47; reprinted in the 'Entomologist,' v. 91, with an editorial note by myself, stating that it was first described by Haworth, p. 174, under the name of Noctua unipuncta, or "white speck." Prior to this there appeared an extract from the 'Liverpool Mercury,' together with an enquiry by my friend Mr. Birchall (Entom. iii. 167), and a reply by Mr. Muller (Id. iii. 215), who gives several references to its occurrence in Europe, but refers it to the genus Heliothis and the species Armiger, a mistake both as to genus and species, which had previously appeared in the first volume of the 'Zoological

Record' (1864). The larva of Heliothis armiger is only too well known, in the Western States of the Union, under the name of the "fall army-worm," and is thus never confounded with the true army-worm. My readers are further referred to the 'American Entomologist and Botanist,' article "Army-worm," pp. 52, 53, and Leucania unipuncta, pp. 106, 111, 328, and 340: some of the information contained in these papers is extremely interesting. I will give extracts:—"In the corner where we saw them thickest, being oppressed with famine behind and our entrenchment in front, they turned on and devoured each other, the larger eating the smaller, and sometimes two making a meal of the same unfortunate. I did not see them kill each other. It may be that the living attacked only those already dead. I saw live ones carrying about dead ones in their jaws, like a pig with an ear of corn, as though to avoid the others, and to enjoy their meal alone. There were a gallon or two of heads left in that corner."—(P. 52.) Again:—"The army-worms are destroying about all the pastures in this vicinity, but confine themselves chiefly to the red-top grass. They have also destroyed considerable corn. I have myself twenty acres of red-top; and unless they stop working upon it inside of two weeks it will be entirely ruined for hay."—(P. 52.) The name of Leucania unipuncta, given by Haworth in 1803, is associated with the army-worm, p. 106, and again at p. 111, and still again at p. 340. The name of Leucania extranea was given by Guenée in 1852; he makes no reference to Haworth, but observes that it somewhat resembles Heliothis armiger and H. peltiger; whence probably the error in confounding the two army-worms. I have described it, in error, in 'British Moths,' p. 261, under the later name of Extranea, being quite unaware at the time of its identity with Noctua unipuncta of Haworth.—*Edward Newman.*]

Agrotis crassa in Guernsey.—I have another species to add to our Guernsey list, the Agrotis crassa of Hübner, two specimens of which I have taken in this island. I sent one of them to Mr. Doubleday, who has kindly returned it with this name.—*W. A. Luff; Mansell Street, Guernsey, April* 19, 1875.

[According to Guenée this species is found in France, Austria, and Germany, in July and August. This profound

Lepidopterist appends to his description the remark that few species have given rise to more confusion than this, which has from different authors received the names of Tritici, Segetum, Testacea, Ravida, and Crassa. He gives the following synonymy and characters of three varieties, forms, or races, which he calls respectively A, B, and C.

"Hb. 152 female, 560 male; Tr. i. 166; God. ii. 236, pl. 67; Gn. Ind. 241; Boisd. 857 = Tritici, W. V. N. 10 (non Lin.) = Segetum, Esp. pl. 60, f. 5 = Testacea (la Testacée), Engr. 448 *b*, *c* (non *a*) = Ravida (la Rousse), Engr. 446 *b*.

A.

Hb. 151 = Ravida (la Rousse), Engr. 446 *a*.

Male smaller, and notably paler; the sagittiform markings wholly, or almost entirely, wanting. Abdomen lighter. Hind wings pure white.

B.

The female has the fore wings altogether of an intense uniform brown-black, which conceals nearly all the markings, except the median lines; hind wings uniform grayish black. Abdomen entirely without bands.

C.

The female has the fore wings very much powdered with grayish white, especially in the median area; the orbicular and reniform are united at the base; the claviform is very short and indistinct; the disk of the hind wings is pure white." (Guenée, 'Noctuelites,' i. 260.)—*Edward Newman.*]

Blue Butterfly in April.—Thinking it an unusual occurrence, I beg to say that yesterday (April 20th) I saw a blue butterfly, but of what species I cannot say for certain, as I was unable to capture it; but I believe it was Icarus.—*C. Lemesle Adams; Walford Manor, Shrewsbury, April* 21, 1875.

[It is the usual time for Lycæna Argiolus, and was probably that species.—*Edward Newman.*]

Scarce Hymenoptera at Norwich in 1874.—It is with great pleasure I record the capture of a fine specimen of a male Macropis labiata. This makes the fourth recorded British specimen. It was taken in the beginning of July last. This scarce bee has not been taken since 1842. Also Didineis lunicornis, July 2nd; and Crabro signatus, June 17th; one male only of each.—***J. B. Bridgman.***

Improved Cyanide Bottle.—Wrap a piece of cyanide, about half an inch square, in blotting-paper, folded two or three times; tie it round with cotton, and fasten it at the bottom of a wide-mouthed bottle with sealing-wax; then warm the bottle gradually over a lamp till the wax melts, and then cork it up. This has answered with me much better than the usual way of covering up with plaster; it also has the advantage of taking only a few minutes to make.—*John B. Bridgman; St. Giles North, Norwich, March* 29, 1875.

Correction of an Error.—I regret to observe than an error has crept into my communication, published in the last number of the 'Entomologist.' At page 82, line 6, "Nephopteryx angustella" is printed for "Œcophora augustella." Your kindly noticing this will, I trust, prevent entomologists searching the trunks of horsechestnut-trees, at Hampstead, for Nephopteryx angustella, which only occurs among spindle.—*Wm. Machin; 22, Argyle Road, Carlton Square, E., April* 20, 1875.

Erratum.—In Mr. Talbot's note (Entom. viii. 89), *for* "Gelechia cinerella" *read* "Grapholitha cinerana."

Answers to Correspondents.

N. R. M.—Larvæ Feeding on Turnip-seed.—I should be glad to learn something of the enclosed larvæ, which I found in February feeding on turnip-seed. I have occasionally found them before, but not in such great numbers. In about one pint of seed there must have been more than two hundred larvæ. I should also like to know if they are destructive to wood.

[The larvæ are evidently those of a Micro-Lepidopteron,—white, soft, and enclosed in loose cocoons, in which they are feeding. The seeds are mostly attached to the outside of these cocoons, but some are also in the inside, which is somewhat more finished, and is very evidently a dwelling-place into which the larva can retreat at pleasure after its foraging excursions. The cocoons vary greatly in size, some being scarcely half an inch in length, others measuring two inches in length: they are very flimsy structures, and collapse directly the larva is removed. Owing to the outside being covered with seed these cocoons are not very obvious in the sample, but if submitted to a fine sieve the loose seed will readily pass through, and the cocoons with their destructive tenants will remain in the sieve. They can then be thrown into a basin of boiling water, and thus quickly destroyed. I hope my correspondent will endeavour to rear some of the perfect moths, and address them to a competent entomologist to obtain the scientific name. I shall have much pleasure in doing this if he knows no one more competent. If a sample of the seed be kept in a gallipot and covered with a piece of glass the moth will be sure soon to emerge, and will be seen resting on the under surface of the glass. The larvæ are not likely to prove destructive to wood; but confine themselves to the seed-diet which they have spontaneously selected.—*—Edward Newman.*]

W. N. Nicholson & Son.—Julus sabulosus.—The enclosed worms have been sent to us by a client in the west of Ireland to ask if we can identify them, and suggest any remedy for the ravages they are committing on sandy soils. Mr. Hadfield, of this town, has recommended us to send them to you, as being the most skilled naturalist that he knows in England; and we should esteem it a great favour if you could furnish us with the desired information.

[The creatures you enclose are Julus sabulosus, of various sizes and ages. They are very abundant in sandy soils, feeding on any vegetable substance they can meet with. It would be particularly interesting if you had described the nature of the ravages they are committing; what plants are attacked; and how they are attacked. The species of Julus seem to be generally vegetable-feeders; they frequent fruit-trees on walls, entering the fruit by little holes that wasps have bitten in the skin, and excavating the interior, in which they coil up, always lying on one side. There is a good paper on them in the eleventh volume of the Transactions of the Linnean Society, in which all the species inhabiting this country are described. As to a remedy for this, or any similar insect-plague, there is none; on the contrary, great injury is done to our gardens by placing confidence in chemists' nostrums.—*Edward Newman.*]

Mr. Prince to Mr. Nicholson, on Julus sabulosus.—The insects I sent you attack all kinds of the cabbage tribe and all kinds of turnips; also carrots, onions, and parsneps. Mangold and potato seem the only things that escape them. They attack the tap-root of all other plants when very young. I quite think the insect in the worm state, as I sent it you, punctures the roots of the different plants, and deposits its egg or larva, as the first sign we see of them is a small round lump on the root: this by degrees gets larger and larger; and when the plant is about six or eight weeks old, on cutting open this lump you will see small white maggots; these lumps and maggots go on increasing in size and number until they kill the plant; and in the case of Swedish turnips they form large angle-berries, like those seen on some cattle; and the turnip dies away. In the case of onions you will see them the very same as you see maggots in meat. Any further information I can give, if you let me know, I shall be only too glad to give it, or send you specimens in the different stages if you require it. I also beg to acknowledge the receipt of your letters of the 22nd and 25th inst., for both of which I return you many thanks, and I enclose you further particulars respecting the insect. If you can find out anything or any treatment that will banish this insect you will bestow a very great favour on us and many others. I have been fighting with it for years: tried all sorts of manures, salts, &c.; lime, also; but all to no purpose. Last February twelvemonth I dug into the sand hot roach lime from the kiln, at the rate of over six tons to the statute acre; still this insect carried off everything last summer; and out of that very piece of sand I got the insects I sent you.—*Stephen F. Prince; Ballycroy, Ballina, March* 27, 1875.

[I think Mr. Prince, in his explanatory letter, may possibly have confounded several insects together. The different species of Julus do not come from a white maggot, which is rather the economy of a weevil than a centipede; but I have often found a Julus in the excrescences caused by other enemies.—*Edward Newman.*]

E. Erskine Greville.—A Luminous Centipede.—On Wednesday, the 16th of September last, I was spending the evening with some friends at Isleworth, and was walking out in the garden about nine o'clock. It was a dark night, and I had come to a part of the grounds shaded by large trees, when I suddenly observed what appeared to be a luminous worm gliding swiftly along the gravel path. It shed a light about a quarter of an inch in breadth, much more brilliant than that of the ordinary glow-worm, and left a track of light about a foot behind it; as an un-entomological companion said, it appeared as if it was "breaking bits off its tail;" the fact being that it left its phosphoric light on the stones and inequalities of the ground as it passed, the spots of light nearer to the creature being as bright as itself, and gradually fading. About two feet in front of this there appeared to be another insect half flying half hopping, and also brilliantly phosphoric. At once I threw a pocket-handkerchief over each, and took both into the house to examine them. The first was a species of centipede of a reddish brown colour, and about two inches long, while the second was nothing but an ordinary daddy-longlegs (Tipula oleracea), which appeared to have been caught by the centipede and to have escaped, as one wing was very much damaged and it had lost two or three legs, and was of nearly equal brightness with its aggressor, which appeared to have the power of leaving its light on everything it touched. I never before met with a luminous British centipede, and should be glad if you could inform me if it is a common occurrence, and also if you think that it was attacking such a comparatively large insect as a daddy-longlegs for the purpose of preying upon it.

[I have delayed the publication of this letter for many months because I thought the fact recorded was familiar to every entomologist; but having received other communications to the same purport, accompanied by enquiries as to name, &c., I cannot hesitate longer to give what information I possess on the subject. The centipede described by my correspondent, Mr. Greville, is Geophilus electricus of authors; and although often so abundant that it is impossible to walk on a gravel path any October evening without crushing some of them, still so few entomologists have really studied its habits with care, that many strange stories have got abroad respecting it. It is the "glow-worm in winter" of newspaper paragraphs, and reappears every year in print just as autumn is merging into winter, and when the sun of the "enormous gooseberry" has set for the season. Linneus has described, under the name of Scolopendra phosphorea, a species which appears very closely allied to our English "luminous centipede," or "winter glow-worm," but is a native of Asia. He relates, on the authority of E. G. Ekeberg, the captain of a Swedish East Indiaman, that it dropped from the air, shining like a glow-worm, upon the deck of his ship, while she was sailing on the Indian Ocean a *hundred* miles from the continent. In Turton's translation the statement is given rather differently, thus: "Scolopendra phosphorea inhabits Asia, and shines like a glow-worm in the dark; has been known to fall from the air into a vessel a *thousand* miles from land, in the Indian sea." Kirby and Spence, in repeating this narrative, make the following observation: "However singular this statement, it is not incredible. The insect may either, as Linné suspects, have been elevated into the atmosphere by wings, with which, according to him, one species of the genus is provided; or, more probably, perhaps by a strong wind, such as that which raised into the air the shower of insects mentioned by De Geer, as occurring in Sweden in the winter of 1749, after a violent storm that had torn up trees by the roots, and carried away to a great distance the surrounding earth, the insects that had taken up their winter-quarters amongst it." ('Introduction to Entomology,' vol. ii. p. 415.) What either of these learned authors may mean by assigning wings to a myriapod I am quite at a loss to understand. I hope Mr. Erskine will excuse the long delay in publishing this communication.—*E. Newman.*]

F. J. Phillips.—Tenthredo Cratægi.—The larva of the enclosed I discovered feeding on quick hedge on the 12th of July, 1874, in the dusk of the evening. The perfect insect emerged from the pupa state on the 18th April, 1875. I enclose with the insect the pupa-case. The larvæ left off feeding soon after I captured them, and assumed the pupa state on the 24th of July. Will you kindly oblige me by naming it?

[I have little hesitation in naming this insect Tenthredo Cratægi, notwithstanding certain discrepancies of character, one of which is very decided. The cocoon, instead of being hard, glutinous, and firmly attached to a twig of hawthorn, as generally observed in T. Cratægi, is woolly, loose, and has been spun amongst the rubbish and earth at the bottom of the breeding cage: this may be the result of the larva not being provided with suitable twigs to which to attach itself.

The imago is *particularly* downy, and the tarsi are *particularly* pale. Tenthredo Cratægi is a very abundant insect: on a mild evening, in July and August, a hundred of its mealy, glaucous larvæ may be picked off any hawthorn hedge in the course of half an hour. It is a great pet with the name-changers, scarcely any two entomologists using the same name:—Cimbex Lucorum, Trichiosoma Lucorum, Cimbex sylvatica, Trichiosoma sylvaticum. Cimbex Betuleti is the name adopted by Klug, Hartig, and Vollenhoven; but it has never been found feeding on birch, as this name would seem to imply.—*Edward Newman.*]

W. Macmillan.—Name of a Wasp.—Will you kindly inform me with what species of wasp the facial and abdominal markings, shown in the enclosed sketch, agree? The wasp, from which the sketch was made, I caught in a window on the 2nd of October last. A friend of mine has compared it with two queens of V. germanica, and thinks it is probably a queen of the small common wasp, V. vulgaris; but is by no means certain.

[I have no doubt of its being the common wasp, Vespa vulgaris, but the markings on the abdomen are subject to some variation; those on the face are more constant, and consequently more reliable.—*Edward Newman.*]

Extracts from the Proceedings of the Entomological Society of London.

Sir Sidney Smith Saunders, C.M.G., President, in the chair.

FEBRUARY 1, 1875.

Variety of Noctua glareosa; and Amara continua at Caterham and Mickleham.—Mr. S. Stevens exhibited a dark variety of Noctua glareosa, *Gn.*; and Mr. Champion exhibited specimens of Amara continua, *Thoms.*, taken at Caterham and Mickleham.

Polistes gallicus utilizing Play-bills in the construction of its Cells.—The President exhibited a nest of Polistes gallicus, taken on the Esplanade at Corfu, of which the cells were partly constructed with coloured paper taken from some play-bills posted in the vicinity, as alluded to in his Anniversary Address, delivered at the last meeting.

A Colony of Colletes founded at Shirley Common.—Mr. F. Smith remarked that specimens of Colletes cunicularia, *Linn.* (C. hirta, *St. Fargeau*), had been captured hitherto only in the Isle of Wight and near Liverpool, and that a number of specimens having been forwarded to him from the latter place he had transported them to a suitable locality at Shirley Common in 1843, and that he had reason to believe that he had succeeded in establishing a colony there, as the insect had been taken near the same spot in 1874 by Mr. d'Arcy Power.

FEBRUARY 15, 1875.

Variety of Strenia clathrata.—Mr. Phipson exhibited a singular variety of Strenia clathrata from Basingstoke, the wings being nearly unicolorous (fuscous), with a few pale spots.

Indian Hymenoptera.—Mr. F. Smith exhibited an additional collection of Hymenoptera sent from Calcutta by Mr. Rothney. It consisted of one thousand five hundred and seventy-three specimens of Fossorial Hymenoptera and Apidæ, all in beautiful condition. There were probably not more than twenty-five undescribed species; but from twenty to thirty species, which were hitherto represented in the British Museum by a single sex, were here most fully represented.

Fleas in a Rabbit's Ears.—Mr. Verrall exhibited a number of fleas, taken two days previously, from inside the ears of a rabbit, at Lewes. They were gregarious in this situation, and in such a position that the animal was unable to dislodge them by scratching.

Colouring Matter from the Cockchaffer.—Mr. Dunning called attention to the following extract from a recent French paper:—"The 'Bulletin des Sciences et Arts' of Poligny (Jura) gives particulars of a curious discovery by Dr. Auguste Chevreuse. He had found that in decapitating living cockchaffers, an hour after they have been feeding, they yield four or five drops of a colouring substance, which varies with the nature of the leaves on which they have been feeding, and he has already obtained fourteen different shades. M. Nichlès, Professor of Chemistry, M. Préclaire, Professor of Drawing, and M. Chatelain, architect, have found that this substance may be employed either in mono-tinted drawings—like Indian ink, sepia, &c.—or mixed with water-colours, and that it does not change on exposure to the light. The colouring substance may be collected on glass or in shells, in which it may be left to dry, and when required for use it is sufficient to dissolve it in water. When applied in a thick coat it presents the effect of varnish. Two or three cockchaffers suffice for a small water-colour drawing."

Pupæ of Pieris Napi required.—The Rev. R. P. Murray stated that Mr. Edwards, of Virginia, was desirous of obtaining specimens of the pupæ of Pieris Napi, and that he would be happy to receive them for him from any entomologist who might be able to obtain them.

March 1, 1875.

Lepismodes inquilinus?—Mr. F. H. Ward exhibited some living specimens of a Lepisma allied to L. saccharina, which he believed to be a new species in this country, and which was found in a bakehouse near London, in the brickwork of the oven, and other warm places about the buildings. Mr. M'Lachlan suggested that it might have been introduced in some American flour, as Mr. Packard had recently published an account of a species which was found in America, closely allied to L. saccharina, and which he suspected might prove identical with the present species.

[I have no doubt that this supposed Lepisma is that city pest Lepismodes inquilinus. I shall be happy to send living specimens to Mr. Ward if he will accept them.—*E. Newman.*]

Fleas in Rabbits' Ears.—A note was received from Mr. W. C. Boyd, with reference to some fleas exhibited at the last meeting. He stated that fleas were frequently found on the *inside* of the ears of wild rabbits, especially about this time of the year, and that his brother had seen a rabbit which must have had three hundred fleas in the two ears, and that they looked as if smeared inside with black paint. He believed the rabbits were not much troubled by the presence of the parasites, as he had never noticed any inflammation, however many fleas there might have been. He also found that hedgehogs usually swarmed with fleas. Mr. Gorham said he had received fleas from a friend who had found them on mice.

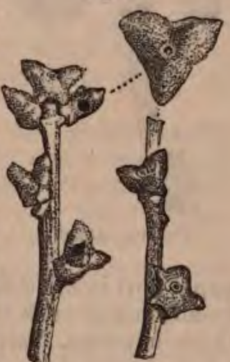
THE ENTOMOLOGIST.

No. 143.] JUNE, MDCCCLXXV. [PRICE 6d.

Descriptions of Oak-galls. Translated from Dr. G. L. MAYR's 'Die Mitteleuropäischen Eichengallen' by Mrs. HUBERT HERKOMER *née* WEISE.

(Continued from p. 99.)

Fig. 25.



CYNIPS AMBLYCERA (C. CORRUPTRIX).

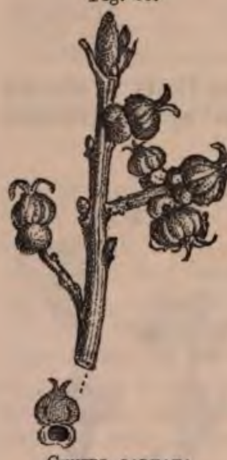
25. *Cynips amblycera*, Gir. (*C. corruptrix*, Schlechtendal).—This small gall, four to five millemetres long, consists of a short, cylindrical part, which contains the larva-cell: this part bears two or three oblique, stout, short, conical projections, which are either turned upward and outward, or only outward. At the point opposite the basal attachment we generally find a small wart, which is surrounded by a dense, woolly, short crown of hairs (in those specimens which have three cones the wart is in the centre of these three). The surface of the gall is red-brown and smooth. In section it shows a large, thin inner-gall, which is grown together with the thin wall of the cylindrical part of the gall, and does not extend into the cones, these being filled with a moderately dense parenchyma. The fly appears in May of the next year.—*G. L. Mayr.*

This species has not been found in Britain; Synergus melanopus occurs in its gall as an inquiline.—*E. A. Fitch.*

26. *Cynips galeata*, Gir.—The beautiful little gall consists of two parts, one placed upon the other, and tightly drawn

together in the middle. The basal half is in shape like a round cushion, is five millemetres in diameter, and from two to three millemetres in height. Its regular development is prevented by the petiole producing an impression, into which the stalk is pressed. The surface of the lower half is red-brown, and generally distinctly reticulated with the darker-coloured epidermis, which, in the development of the gall, becomes cracked in that manner. The epidermis itself is covered with scattered, moderately long, fine, woolly, white hairs. On the cushion-shaped basal part rests the almost bud-like upper part: the base of this part is quite as thick, and of the same shape, as the basal part of the gall itself; towards the top, however, it is prolonged into a short conical point, and into one or several fibrous projections, which are generally again divided before attaining the top; this upper part of the gall is covered with short woolly hair, and shows at its lower, swollen part a coarse longitudinal striation. In section, the inner gall is found contained in the cushion-shaped basal part, and is united with the substance of the gall all round. The bud-shaped upper part is filled with a brown cellular tissue. This gall is found on the weak twigs of shrubby Quercus pubescens and Q. pedunculata. Neither Dr. Giraud nor myself was successful in obtaining the gall-fly.—*G. L. Mayr.*

Fig. 26.



CYNIPS GALEATA.

In a note appended to his description of the gall, Dr. Mayr gives a description of the gall-fly from a dead, but mature, specimen, cut out of a gall. All the galls obtained by Dr. Giraud were empty but two, and they contained the larvæ of a Callimome. Dr. Mayr bred Ceroptres arator, but probably from the twig, and not from the gall. The species does not occur in Britain.—*E. A. Fitch.*

Life-histories of Sawflies. Translated from the Dutch of Dr. S. C. SNELLEN VAN VOLLENHOVEN by J. W. MAY, Esq.

(Continued from p. 76.)

EMPHYTUS SEROTINUS, *Kl.*

Imago: *Klug, Blattw. in Magazin Berlin,* viii. p. 288, No. 215; *Hartig, Blatt-und Holzwespen,* p. 253, No. 22.

Larva undescribed.

Emphytus niger, abdomine et femoribus fulvis, tibiis flavis, tarsis posterioribus fuscis.

Although this life-history is incomplete, as I am not acquainted either with the egg or the pupa of the species referred to, I have thought it advisable to publish my observations as far as they go, as it seems to me that the species is very rare, and I might probably wait for a long time in vain before I had an opportunity of completing them. I first observed a larva of this species many years ago at Beele, near Voorst; since then I have only found two others; and I have not received a single specimen from any of my entomological friends.

The larvæ I found were very nearly full grown, having only the last moult to undergo: one, as above mentioned, was taken at Voorst, and the others between Wassenaar and the Hague, at the side of the road. They were found on oaks in the beginning of the month of June, and seemed to feed by preference on the young leaves. When at rest they assumed the same position as do the larvæ of Emphytus cinctus, *L.*,—rolled round spirally, as shown at fig. 1. In feeding they began at the edge of the leaf, eating on toward the midrib. The body was quite round, much wrinkled on the back, and without either hairs or tubercles. They had twenty-two legs. The skin was sea-green in colour, but entirely covered with a sort of white bloom or powder, so that the true colour of the skin could only be distinctly seen between the folds. The spiracles, which were eighteen in number, had very narrow, obscure white borders, and were thus so inconspicuous that it was only by the aid of a magnifying-glass they could be distinguished. The outline of the head was round, excepting the parts of the mouth, and flattened anteriorly; it was of a purplish gray colour to just above the eyes, and from there pale yellow, and was thickly covered with white powder along the posterior margin; as usual, the eyes were inserted in round black spots (see fig. 2). The claws of the anterior legs were brown.

After the larvæ had moulted for the last time the white powder had entirely disappeared. The head now assumed a shining, ochre-brown tint, with black spots, in which were the eyes (figs. 3, 4); the body was of a pale, feuille-morte colour, and wrinkled, the skin being in folds as before. They descended into the ground for the purpose of passing into the pupa state; but as on the occasion of making these observations I only had one or two examples at a time, and I am convinced that any disturbance of the mould prevents the completion of the metamorphosis, I let them remain quietly. Thanks to which, it may be, the imagos appeared; but in consequence of which I missed the opportunity of observing the pupa.

The perfect insects were produced at the beginning of October: I find two dates mentioned in my notes, namely the 3rd and the 14th of that month. Having regard to the length of the body, and more especially to the neuration of the wings, they certainly belong to the genus Emphytus; the structure of the antennæ, however, approaches more nearly to that of Nematus, while the habit of the larva closely agrees with that of many species of Selandria. The head is quadrate, with rounded angles (looked at from above), black, and thickly clothed with very short hairs; the sides of the head, behind the eyes, are very projecting, and the vertex has a number of elevated points. The labrum is very hairy; the mandibles are short and broad; the palpi are rather long, the middle joints being of a whitish tint. The thorax is clothed with a short pubescence; the tegulæ are brown, and the cenchri clear white. The first abdominal segment is black, and deeply notched on the posterior margin, so that, as is the case with the males of Cimbex, a considerable triangular space remains open, within which a white membrane is seen. The rest of the abdomen is shining and orange-yellow, both on the dorsal and ventral surfaces. The valves of the ovipositor are dark brown, nearly black. The antennæ are black, and are longer than is generally the case in the genus Emphytus. Wings transparent, iridescent, a little darker at tips; the costal nervure and the stigma are sordid brown; the radial and cubital nervures, with their branches, are dark brown; and the remaining nervures orange; the coxæ are black; femora orange; tibiæ yellow, the ends of the posterior pair being brown; tarsi brown, having the base of the first joint yellow. Length of the imago eight millemetres, expanding to seventeen millemetres.

Notes on Ephyra punctaria and E. pendularia.

By B. G. Cole, Esq.

It is a well-known fact that the spring and summer broods of many insects are very different in appearance and size. In some cases, as in Selenia, the variation is so great that the two forms might readily be considered distinct, were no other data available for arriving at a decision than those afforded by the superficial characters of the specimens themselves.

The genus Ephyra is, I believe, generally considered double-brooded, the spring specimens being held to be the progeny of the preceding summer one; but in rearing larvæ from the egg I have noticed some facts that seem to show that at least a portion of the spring specimens are from the same batch of larvæ as the summer brood, although the two forms are so distinct in appearance.

On the 2nd of June, 1874, I captured a female E. punctaria at Hall End, Chingford, Essex, which laid a batch of eggs, the larvæ hatching out on the 9th. Most of the larvæ changed to pupæ between the 4th and 13th of July; but on the 16th of July, when the first moth appeared, I had several larvæ still feeding, and they did not change until the end of the month. The last specimen out that season appeared on the 26th of July; and on the 24th I had found specimens at large in Woodford Forest. These were all the autumnal form, distinguished from the spring specimens by being smaller, with the two dotted lines more distinct, and having between the outer of these and the hind margin of the wings two or more blotches of a beautiful purplish brown.

During the present month (on the 1st and 3rd of May) a few specimens have appeared from the same brood. They are all of the large spring form, and exactly similar in appearance to the present moth, captured in June, 1874.

A brood of E. pendularia that I reared in 1869 behaved in like manner, moths appearing from July 12th to November 26th, being all the small form; and those pupæ which remained over the winter, and came out in the spring of 1870, were of the usual type.

It will be noticed that some of the larvæ of E. punctaria were longer feeding up than their brethren, and possibly these were the individuals that remained over the winter; still it is difficult to conceive the determining cause of the behaviour of the different specimens, and still more of their distinctness of form: the favourite hypothesis that heat hastens the development of the summer broods, and so prevents their feeding sufficiently to grow to their normal size, is here hardly applicable. In the instances I give the larvæ were exposed to exactly the same influences, climatic and otherwise, and yet the two phases of the same brood were as well marked as in the forms of Selenia, which the heat hypothesis is supposed to explain.

I merely take the above facts from my note-books, in the hope of calling forth correspondence anent the matter, encouraged by your remarks in the last number of the 'Entomologist' (Entom. viii. 107) that you will be disposed to pardon their crudity. Everyone must agree with the spirit of your request, that collectors would give such extracts more frequently: however imperfect the observations, they may lead to enquiry; and they would at least be more interesting and suggestive reading than the usual Latin "roll-call" of the slain, or those mythical accounts of the capture of re-set alien rarities in England, the exposure of the frauds and follies in connection with which have brought the British entomologist into such disrepute with true naturalists, and made him the subject of ridicule amongst the more sober and less gullible members of the craft.

B. G. Cole.

The Common, Stoke Newington, N.
May 11, 1875.

Some Remarks on Collecting and Collectors. By W. Arnold Lewis, F.L.S.

(Entom. viii. 103.)

Like others of your readers I take an interest in the subject which Mr. H. R. Cox has descanted upon in the last number of the 'Entomologist,' and with your permission I will write down some reflections which have suggested themselves to me in a collector's experience of several years.

I can confirm Mr. Cox's reference to "the good old free spirit of collecting." Free enough, in all conscience, that collecting was. I have myself spoken with a gentleman who in one year captured on the south coast *eight hundred* specimens of Colias Hyale, and I recollect that he boasted roundly of the exploit! The same once informed me, when I was in search of the second brood of Leucophasia Sinapis, that I need not expect again to see that insect in the neighbourhood, because he had that season *taken the whole spring brood.* It is possible that your correspondent has himself heard of these incidents, or others like them; and on these facts I should wish to make one or two remarks.

Anyone who captures eight hundred butterflies of one kind, when his own collection receives perhaps four-and-twenty, must have a very distinct *motive.* Mr. Cox speaks most truly when he hints that "the pleasure of entomological rambles" could have little to do with such a feat. What pleasure, in truth, could come from taking the lives of eight hundred defenceless Hyale? After the capture of, let us say, the first one hundred and fifty, sensations of "pleasure" must have begun to give way to physical fatigue. In Mr. Cox's expressive words, the object was once "principally a day's innocent pleasure, and not so much with a view to amassing a large number of specimens in the shortest possible time." But certainly in the case of the eight hundred, "amassing the large number" must have remained the motive long after pleasure, innocent or not, had left the scene. Setting out eight hundred butterflies must be a very tiresome business, and probably no other collector has experience of the labour it entails; seven hundred and seventy-six

Hyale, we may suppose, would be of no use to the captor, and they would remain over for distribution to Lepidopterists in want of the species. One almost envies this hard-working collector the spectacle of their "unbiassed delight." I am not perfectly informed whether this was the course taken by the captor of the eight hundred; but, if it was, he has doubtless made himself the most popular collector in the country. Far be it from me to say that this gentleman was anticipating "the modern school." I merely suggest that such a feat of the old, free spirit of collecting scarcely answers to "a day's enjoyment," but savours rather of "amassing specimens."

In the case of Leucophasia Sinapis the same reflections are suggested rather more strongly; while Colias Hyale comes at one time in large numbers, and (whether captured or left alone) then disappears to return again after several years, the gentle creature Sinapis may no doubt be easily exterminated. I can picture to myself the dismay of a collector whose "honest" (but too thoughtless) "exertions" have unduly thinned the numbers of a local insect, and the care he will always in future take that a like result shall not again occur. But I can *not* picture (even to myself) the attitude of mind of a collector who knowingly and with determination extirpates Leucophasia Sinapis, and talks confidently afterwards of the deed being effectually done!

So much for these instances (the two strongest, I admit, that I have ever heard of); and I am happy to gather that in one way of regarding such feats I am in agreement with your correspondent. With him I cry, "Shame on these collectors!" But I must decline to collect "in the style of the good old times," for these very instances I have mentioned belong (it will be understood) to the period which your correspondent regards approvingly. I desire to add something upon the status and public estimation of collectors. I am neither a reverend divine nor a person of large independent property, but I am accustomed to show, and to exact, civil treatment; and out of London I have never found the contrary. I do not receive the snubbing which Mr. Cox has "noticed" in various parts of England, and I hope he is under a misapprehension in regard to it. If, when I visit the New Forest (as I do in fact every summer), I carried off say a thousand Zygæna

Meliloti, I could well understand my being supposed to catch burnets for my living. But I see no harm in that. If a collector takes insects by the hundred of a kind, there is little blame to the unsophisticated in supposing that he does it because he is paid. Dealers pure and simple I have nothing to say about. By their trade they are bound to find, catch, and carry away every insect with the most trifling value. They work for money, not for love; and they are outside the discussion altogether. For the rest, those who treat others well are well treated in return. As I neither cut down people's trees, nor flog them till I leave beneath each one a heap of leaves and broken branches, and as, speaking generally, I do not commit barbarisms when entomologizing, which I should shun at other times, I never find myself unwelcome, though everyone may know well enough that I go out catching moths and butterflies. I do not understand why others should have different experience.

As to collectors' demeanour towards each other, that is a subject which has caused me reflections times and oft. The mysteries made about a locality; petty dissimulations about time of appearance (to throw another off the scent); concealments of the facts of captures being made;—these and other paltry and more detestable things are, I fear, common. It must be really shocking to encounter a collector with a stock-in-trade of all these arts. Mr. Walton, so long ago as 1835, wrote on this very subject in the 'Entomological Magazine' (vol. ii. p. 279) in very feeling and earnest language, which all who have the opportunity should peruse. Mr. Shield ('Practical Hints,' pp. 19, 44, 191) and others have, from time to time, done what they could to bring about a better state of things. But remonstrances, notwithstanding, the complaint is, I believe, too well founded; and I regret very much to avow my own conviction that there is only one complete and certain cure for it. The evil has grown entirely out of the fictitious value ascribed to native specimens, and must vanish, like a breath, directly foreign specimens are admitted to have an equal worth. I have all the prejudices of one who for sixteen years has collected none but British Lepidoptera; and the intention which I have at length definitely formed of opening my collection to foreign specimens (or rather taking up the European fauna) first had its rise in the condition of things to which your correspondent has alluded. I shall not take the line of urging the duty of all to accept European insects. That has been rather offensively done in the past, by some with whose ways and language towards collectors I confess nothing in common. But, as one individual speaking for himself, I must give up collecting only native insects, because (for one reason) I see to what arts, manners, and customs, I am against my will contributing.

W. Arnold Lewis.

Temple, May 20, 1875.

Notes on Oviposition. By the Rev. P. H. Jennings.

Selenia illunaria.—Laid forty-five eggs on April 27th and 28th, all detached from one another and at random on the muslin cover, none on the food-plant; oval, polished, slightly flattened on the upper and under surfaces; pale yellow, with a slight greenish tinge, changing gradually to dark red. The young larvæ began to emerge on the seventeenth day, May 14th.

Anticlea badiata.—A female, taken on the 19th of April, laid nine eggs on the 20th, six on the 21st, three on the 22nd, one on the 24th, five on the 25th, one on the 26th, five on the 27th, two on the 28th, and three on the 29th; oval, polished, yellow, gradually deepening to orange: all fixed either on the points of the thorns of the food-plant, dog-rose (Rosa canina), or on the edges of the leaves,—with two exceptions, which were attached to a leaf-stalk. The young larvæ, which began to emerge on the sixteenth day, May 6th, were yellow, with orange-coloured heads.

Scotosia dubitata.—A female, taken May 5th, laid thirty eggs on the 6th and eight on the 7th, all detached; fifteen of these were on the upper edge of the leaves of the food-plant, common buckthorn (Rhamnus catharticus), and twenty-three on the edge of the under surface; oval, polished, slightly flattened on the upper and under surfaces; pale yellow, with a slight greenish tinge, assuming a reddish hue on the second day. The young larvæ emerged on the tenth day, May 16th.

Asthena candidata.—A female, taken May 8th, laid fifty-four eggs on the 9th and 10th; almost all singly, very seldom in batches of three or four; all on the edges of the leaves of the food-plant, hornbeam (Carpinus Betulus), forty-six on the upper edge, and eight on the edges of the under surface; oval, opalescent, flattened on the upper and under surfaces, so that the edges are quite sharp. The young larvæ began to emerge on the ninth day, May 18th; they are white, thickly sprinkled with hairs; heads black.

Cidaria miata.—A female, taken May 5th, laid seventy-five eggs on the same day, eighteen on the 6th, and four on the 7th; all deposited singly near the middle of the leaves of the common birch (Betula alba), either on the upper or under surface, varying in number from one to ten on each surface; white, considerably flattened on both surfaces; both ends similarly rounded in shape, a little longer than broad; not polished. The young larvæ began to emerge on the ninth day, May 14th, attaching themselves by their claspers to the jagged points of the leaves, and standing at right angles, never moving, except bending down to feed.

Xylina rhizolitha.—A female, captured April 20th, laid fifty-five eggs; on the 26th, two; on the 28th, three, all scattered on the leaves; on May 1st, twenty-five, all on the muslin; on the 2nd, twelve scattered on the leaves, and ten on the earth, glass, and muslin; three on the leaves, white, Echinus-shaped, slightly rubbed longitudinally: streaks of reddish brown, appeared on the third day. The young larvæ began to emerge on the fourteenth day, May 10th.

P. H. Jennings.

Longfield Rectory, Gravesend,
May 19, 1875.

Entomological Notes, Captures, &c.

Vanessa Atalanta.—I have to record a singular occurrence, which may perhaps interest the readers of the 'Entomologist.' On March 6th Mrs. Boley, whilst walking through the lane leading to Fermain Bay, noticed one of the leaves in a bed of nettles curled up, and on opening it was surprised to find a small larva of Vanessa Atalanta; on searching further she succeeded in finding three more. The first larva spun up on April 18th, and on May 11th the first imago put in an appearance.—*W. A. Luff.*

["Almost immediately on emerging from the egg the little caterpillar draws together the leaves of the nettle, and feeds in confinement. As it increases in size it requires more space, and continues to increase the size of its domicile up to the period of pupation: when removed from its retreat it feigns death, bending its extremities together; all its movements are slow and lethargic, and its only object when exposed seems to be again to conceal itself. The insect appears on the wing in August, September, and October." (Newman's 'Illustrated Natural History of British Butterflies,' p. 62.) There seems to be nothing new in Mrs. Boley's discovery except the time of appearance; but it is interesting to learn that a butterfly, which in England never leaves the pupa-state before August, should in Guernsey emerge so early as the 11th of May.—*Edward Newman.*]

Lycæna Alsus.—In looking over Newman's 'British Butterflies' lately I find that Surrey is altogether omitted from the list of localities for L. Alsus. I found it not uncommonly last season in a chalk-pit near Guildford, the only locality I yet know for it. I did not find L. Adonis in that neighbourhood, though it is included in Newman's list. I hope to collect at Coombe Wood this season, and shall be glad to furnish you with a list of insects from that locality.—*W. Thomas; Surbiton Villa, Surbiton, May* 4, 1875.

Eupithecia consignata at Cambridge.—Last year I took a female of this species at a lamp-post in Cambridge, which, when confined in a muslin-bag with apple and whitethorn, laid a dozen eggs on the under sides of the leaves. The eggs were laid on May 16th. The larvæ, which hatched on the 29th of the same month, fed both on apple and whitethorn, but seemed to prefer the latter. The larvæ were full grown in the last week in June, and I found then that I had eight pupæ. Four imagos emerged this year, the first on April 22nd. The remaining four appear quite healthy, and will probably lie over till next year. I have also succeeded in taking three specimens at lamps here this season, unfortunately all males; the dates of capture were May 3rd, 4th, and 7th.—*Gilbert Raynor; St. John's College, Cambridge, May* 22, 1875.

Eupithecia extensaria (Entom. viii. 108).—Referring to your notice of my capture of E. extensaria, I have had several letters from correspondents suggesting to me the probability of its being an odd specimen accidentally imported. The species may have been imported by some of the numerous Black Sea and Baltic steamers trading to Hull. I think it highly probable it has been so introduced. But when? The fine condition of the specimen I took leads me to believe it has been bred in this country. The Eupitheciæ, generally, are not addicted to roaming; but even if this specimen was an exception it could scarcely have travelled a considerable distance from the nearest steamer without damage to its plumage. The coming season will no doubt show whether the species is established on the ground, or the specimen I have to be a solitary wanderer.—*James Sawyer; 16, Lendal, York, May* 8, 1875.

Eupithecia extensaria (Entom. viii. 108).—It is sufficient to know Mr. Sawyer to be assured that this recorded capture is in every sense a genuine one, so far as he is concerned; but steam is slowly working a revolution—even in Entomology: Livonia is practically now as near to us—especially to Hull—as the Continent is to the South Coast of England, for steamers trade weekly direct to Revel, Pernau, and Riga, bringing large cargoes of hemp, flax, linseed, and grain. The Russian peasant sends his produce to market in a dirty state, especially grain and linseed, largely admixed with weeds and rubbish. What more likely than that E. extensaria, in the egg or pupa state, has been brought over in this way? and the probability is strengthened by the locality of the capture being within a mile or two of the dock warehouses where these steamers chiefly discharge. This capture is, I believe, a solitary one, and unfortunately the spot has now been broken up for the extension of the dock, but there would be nothing startling in its having found a domicile here, for the climate is congenial.—*N. F. Dobrée; Beverley, May* 18, 1875.

Eupithecia Knautiata (Entom. viii. 38).—Is Mr. Gregson sure that the plant he found this species on was not Scabiosa succisa (*L.*)? I have never seen Knautia arvensis out of cornfields, whereas Scabiosa succisa is always found growing in company with the common ling in heathery, sandy ground. Should this be the case, would it not be better for him to alter the name of the species, unless the inflexible law of priority must hold its own in every case; else it might fall under the same category of misnomers as Cloantha Solidaginis, which it is known does not feed upon golden-rod (Solidago), but bilberry (Vaccinium).—*J. Cosmo Melvill; May* 7, 1875.

[The same idea occurred to myself. Scabiosa succisa grows almost everywhere on heaths and wastes near London; Knautia arvensis only in cornfields, and the hedge-banks near cornfields.—*Edward Newman.*]

Leucania extranea or unipuncta (Entom. viii. 108).—As the capture here, by Mr. Parker, of this very rare Noctua has created such a sensation in the entomological world, it may interest some readers to know that, in addition to the countries mentioned by Mr. Doubleday, it is an abundant Australian species, as mentioned by me at p. 353 of the 'Entomologist' for 1873. While sugaring in the Bush, about thirty miles from Adelaide, it became at times a perfect pest. I have carefully compared the specimen captured in the New Forest by Mr. Parker with my Australian series, and find his specimen differs from mine in many respects; the colour of the fore wings being paler, and of a much more reddish ochreous colour than the Australian type; the apical streak is more decidedly marked, and the gloss in the hind wings is much stronger, resembling very much, in certain lights, the purple tinge in the hind wings of our Agrotis saucia. In Australia L. extranea emerges from the pupa in March.—*H. Ramsay Cox; Lyndhurst.*

The Season at Lyndhurst.—The season here is remarkable, on account of the great abundance of many common species: Io, Urticæ, Rhamni, and Egeria, have swarmed; Polychloros has also been very common, but the specimens are all remarkably small, doubtless caused by the great dryness of last year. Although vegetation is in various parts rather late, many insects have come out proportionately early; for instance,—Acosmetia caliginosa was out on the 13th of May, Leucophasia Sinapis was quite *passé* by the same time, and Lycæna Argiolus was also in the same condition in the last week in April.—*Id.*

Variety of Clostera curtula.—I have just had the good fortune to breed a fine variety of C. curtula: the fore wings are of a rich sepia-brown, which shows up the four wavy white lines to great advantage; where the dark blotch comes near the tip in the usual type, this variety has a rather paler one, and the body and hind wings are much darker than usual. I have also bred a specimen of the usual type, which has one tip much paler than the other.—*H. Wittich; 55, Lansdown Road, Dalston, E., May* 19, 1875.

Xylomiges conspicillaris at Dartford.—Mr. Packman, of Dartford, took a fine female of X. conspicillaris, on the 10th of May. He brought it to me, and I am pleased to say I have a few eggs from it, which apparently are fertile.—*A. B. Farn; New Government Offices, Whitehall, S.W., May* 14, 1875.

Agrotis Helvetina.—Mr. Taylor kindly brought me his specimen of the Noctua, which my friend Dr. Knaggs named Agrotis Helvetina, to compare it with authentic specimens of this species given to me by Dr. Staudinger. I think the continental specimen which Dr. Knaggs examined must have been wrongly named, as such a keen observer could not possibly confound two such very different species. Mr. Taylor's Noctua scarcely differs from the red variety of Neglecta, except in size, being larger, and it may only be a variety of this species; but I cannot speak positively about it till I have seen a male. Agrotis Helvetina closely resembles the dark variety of A. lucernea, but is considerably larger, and has very long legs and antennæ.—*Henry Doubleday; Epping, May*, 1875.

Larvæ of Cirrhœdia xerampelina.—On the 3rd of May I took about twenty larvæ of C. xerampelina, under moss on ash-trees, near this village. I never took it here before, although I think I saw one of the moths at sugar in August last. I may add that a great many of the larvæ are ichneumoned.—*A. Thurnall; Whittlesford, Cambridgeshire, May* 7, 1875.

Beetle Destructive to Mangold Wurzel.—I have received almost simultaneous complaints of the destruction of young mangold wurzel in distant localities. In some instances the writers complain that the insects "began to eat the young plants before appearing above ground, and never left off; in many rows taking every plant." In the 'Field' newspaper I have given all the information I possess respecting this diminutive enemy of the farmer: this is chiefly extracted from the 'Annales de la Société Entomologique de France' for 1847, was originally written by M. Bazin, and has been copied by Mr. Curtis in his 'Farm Insects,' p. 395. According to these authorities the beetle in question is the Atomaria pygmæa of Heer, the Atomaria linearis of our countryman the late J. F. Stephens: the specimens, of which I have received a copious supply in a living and excessively restless state, seemed closely to resemble certain examples of an Atomaria, which very many years ago I had named "A. gutta." I am, however, perfectly willing to accept Heer's name of "Pygmæa," or any other that will be tolerably permanent. M. Bazin, as translated by Mr. Curtis, tells us that this little beetle is "generated in great numbers, destroying the buds as they appear, and that on removing the clods of earth innumerable quantities may be seen." It seems at first to attack the root only, but afterwards, when the weather is fine, it comes out of the ground, ascends the stem, and devours the leaves. "These little creatures often appear in families on a small plant, of which in a few hours nothing will remain but a leafless stalk, which soon withers and dies." M. Bazin first observed this beetle in 1839 at Mesnil-St.-Firmin; and some years later M. Macquard stated that "it devoured the fields of red beet in the environs of Lille to such an extent that the cultivators were obliged to re-plough and re-sow the fields." M. Bazin considers the following remedies to be infallible:—1st, fallowing; 2nd, heavy rolling; 3rd, good tillage; 4th, powerful manure; 5th, thick sowing. I must in this instance totally disclaim all experimental knowledge of these remedies. I give them solely on the authority of the learned Frenchman, to whom we are indebted for the earliest life-history I have seen of this insect. Mr. W. H. Wayne, an intelligent correspondent of the 'Field,' informs us that the injury "still continues in spite of salt, lime, and soot," leading us to believe that he has given these supposed remedies a fair trial. Mangold wurzel is also obnoxious to the attack of several species of the saltant genus Altica, the larvæ of which mine the leaves in the same manner as those of the turnip are mined by Altica Nemorum; and it has been said that the larvæ of a necrophagous beetle (Silpha opaca) feed greedily on the leaves, beginning at their edges, just in the same manner as a woodlouse or the caterpillar of a moth. The curious fact of these insects eating green leaves, a diet so opposed to the taste we should assign to it, has been observed by Mr. Maxwell in England, and Guerin-Méneville in France.—*Edward Newman.*

Sugaring: Toads at Sugar.—Few who collect insects are ignorant of the system of sugaring and its surroundings, or of the numerous enemies we meet with in the prosecution of the work. I do not allude to game-keepers, and the like, but those minor annoyances, which come uninvited to interrupt our composure and mar our chance of success. It is somewhat annoying if we have a good moth on the sugar to see a bat rush in and take it from us whilst we hold the light for its accommodation; neither is it pleasant to cast the light upon the sweetened mixture and find it completely covered with earwigs, woodlice, and a host of other equally unwished for creatures, whose presence seems in most cases to scare away those for which the sweet feast had been spread. Again, how ugly two or three great black slugs look helping themselves to the rum and treacle, although we might have seen something not altogether repulsive in their appearance amongst the dewy grass at our feet. All these, and many other drawbacks are perfectly well known to the entomologist, but I was not aware till last summer that the toad came in the same category, provided circumstances were favourable; such, however, is the case, as the following facts will prove. A friend of mine was accustomed to sugar the posts of an open fence near his house, and was sometimes rewarded with success. One of these posts becoming infirm a support was placed in an oblique direction from near the top of the post to the ground, and my friend, on going to his sugar, observed that a large toad had crawled up the support and stationed itself close to his patch of sweetened intoxicant, and that as the insects arrived at the attractive bait the toad appropriated them to its own personal use; and my friend further informed me that every night he sugared, the toad was sure to be there, and that he put on a portion of the mixture for the toad's especial benefit. Is not this a proof that toads have a memory? At least it is evident that the toad, having found a more abundant or more palatable fare by crawling up the rail, did not fail to be at its post night after night.—*G. B. Corbin.*

[A precisely similar occurrence is recorded in the 'Zoologist' for 1860, at p. 7201. It is as follows:—"There is a tree standing by the side of a ditch in the fens, which leans in, three feet and a half from the ground, two inches out of the perpendicular. There is a small, hollow place in the stem, one inch deep and two inches wide, and growing wider all the way from the ground until it is lost. On this tree, three feet and a half from the ground, I sugar for moths, and on several nights a large toad has ascended the tree to the sugar: it always sits quietly on the trunk, but I never find it on any other tree, although there are several in the neighbourhood, all of them ash. I believe the object is to take the moths as they come to the sugar. I have called the men at the railway bridge, which crosses the river near the spot, and one of these men the other night took it down, but it was there again in half an hour. I never find any moths on the tree if the toad is there.—*William Winter*." I have long been familiar with the habit of moths to fall off the sugar in a fit of intoxication: my friend Mr. Doubleday has often spoken to me of having observed toads waiting for moths under his own sugarings at Epping. I am surprised Mr. Corbin has not two other sweet-toothed visitors to the sugar,—the longtailed field-mouse and a common ground-beetle, an insect, as I said before, much addicted to a "diet of worms:" one can scarcely imagine any similarity between the taste of worms and centipedes and that of rum and treacle. Entomologists always speak of the field-mouse as the "dor-mouse"—I think an evident error. Perhaps I may mention, in connection with this subject, two other kinds of insect-food for which the toad has a decided leaning: in the first instance this weakness may be called beneficial to man; in the second, prejudicial. The first is the gooseberry-grub (Nematus ventricosus); the second the honey-bee (Apis mellifica). The *penchant* of the toad for the gooseberry-grub was first noticed by Mr. Leadbitter, of Gray's Inn, who often observed the abundance of the grub on some currant-trees nailed against a garden-wall at Dorking. Mr. Leadbitter proceeds thus:—"Perceiving at the same time a toad, sitting quietly in a corner at no great distance, it occurred to me to try if he would eat them. Accordingly, having collected a large quantity of grubs, I presented him with one at the end of a short stick, and was much pleased to see him put out his long tongue, draw the caterpillar in, and devour it greedily.

I continued to feed him for about a quarter of an hour. Taking a turn in the garden the next day, about the same hour, I saw the old fellow sitting in the same corner as before. The two following days he returned to the same place, but the supply of gooseberry-grubs was exhausted; and, as the supply failed, the toad absented himself, and was seen no more." The only birds known to eat the gooseberry-grub are the cuckoo and the redstart: the former is ruthlessly persecuted as a "vermin;" the latter as a consumer of summer fruit. But to return to the toad. It has a propensity rarely observed, but very decidedly developed, for a kind of insect-food that one would have thought rather too pungent for his palate; but a fact was related to me, and published as long ago as 1853 in the "Proceedings of the Entomological Society," which places the matter beyond the possibility of doubt. It was stated thus:—"A stock of bees was observed to grow weaker day by day, until at last it became so pauperised that the hive was removed, and the bees turned adrift to shift for themselves; nothing was amiss with the interior of the hive. A second stock shortly afterwards exhibited similar symptoms of depopulation, and a suspicion was then entertained that some nocturnal depredator entered the hive at night and devoured the bees. About two hours after dark the hive was visited, with a view to an inspection of the interior, but on arriving at the spot with a lantern the owner found a large toad squatted on the alighting-board, and looking about him with bright and animated eyes. Presently a night-roving bee returned home: there was a sudden movement on the part of the toad, and the bee vanished. A long interval of patient watching ensued, when a second bee came home: a second movement of the toad followed, and the bee again vanished; but the light of the lantern was this time thrown full on him, and he was distinctly seen to swallow. The toad was caught and killed, and eight still-living bees were taken from the stomach."—*Edward Newman.*]

Localities and Collectors.—That unworked localities, when brought under the vigilant inspection of the entomologist, often produce the greatest number of rarities, is an undeniable fact; consequently, when we have a few hours to spare, we would fain rush off to some locality which we well know has been the scene of some grand "take," whilst we leave our own immediate neighbourhood comparatively untouched. Again, we well know that some localities are much more productive than others, even provided each has had the same amount of labour expended on it; for instance,—I want no prophetic knowledge to assure me that a day spent in the New Forest will undoubtedly be more remunerative than the same time spent in the fields in this locality; yet, in the face of these facts, I do not hesitate to say that we often neglect places close at home, and the certainty of a moderate success, to run the risk of a total failure at a distance. Supposing we have collected in the same spot season after season, are we sure that we have detected *every* species to be found there? On the contrary, are we not often surprised at what we take? I have a case in point:—Last season I was walking through a fir-wood, where I have collected for some years past, and was greatly surprised at capturing a specimen of Macaria alternata, a species I had never dreamt of taking there amongst fir-trees, with no sallow in the neighbourhood; and, later in the season, as if in contrast, I beat out a specimen of the handsome and pine-loving Crambus pinetellus from a bush of spindle, where not a fir-tree stood. The only specimen of Lobophora hexapterata I ever took was upon an extensive heath in this neighbourhood; but perhaps the most remarkable captures are two specimens of Agrotis valligera, which I took at heather-blooms in the same locality. The occurrence of the latter species upon heaths in this neighbourhood has been doubted by some to whom I have mentioned it; but I have only to say that the specimens are in my cabinet, and can be seen by any person. It is strange that such a coast-loving species should occur here; but it seems equally strange that the heath-loving Selidosema plumaria should be found upon the cliffs at Lulworth, where I took two specimens a few seasons ago, when there for Hesperia Actæon. Thus it seems that no locality has been so thoroughly worked that the number of species actually to be found there are known positively, and the occurrence of a hitherto unsuspected species is no uncommon thing in any locality. The experience of many readers of this journal will undoubtedly bear me out in these remarks.—*G. B. Corbin.*

Answers to Correspondents.

A. R. Wilson.—Melanippe tristata?—I would take it as a great favour if you would name the accompanying moth. The only moth that it resembles is Melanippe tristata, but it differs from it materially, being much lighter, and the black bands being narrower and more interrupted. I took about eighteen of them in June among junipers; they were abundant, but the wind was high, and I had great difficulty in catching them. They are all light; in fact I have sent you about the darkest of the lot.

[Mr. Wilson's Geometra appears to be a light-coloured specimen of Tristata, *Linn.* (not of Hübner). I believe Baron von Nolcken first pointed out that two species were confounded under the name of Tristata by European entomologists. Dr. Staudinger has adopted his views, and the two species stand thus in the second edition of his 'Catalogue of European Lepidoptera:'—

No. 2689. *Tristata,* Linn. S.N.X. 526, F. S. 335; Clerck. Icon. 1, 13; Wood's Index, 566. *Limbopunctata,* Nolck. Fn. 1, p. 270.

No. 2690. *Luctuata,* Hb. Btr. 1, 1, 4, Y. p. 34 (1786; Non. Btr. 1, 4, 3, T.). *Hastulata,* Hb. Btr. Nachtr. p. 110 (1792); Molck. l.c. p. 61. *Tristata,* Hb. 254. ? *Pupillata,* Thnb. Diss. Ent. 4, p. 62, fig. 13.

Both species probably occur in Scotland.—*Henry Doubleday; Epping, May,* 1875.]

Edward Thomson.—Food-plant of Gonepteryx Rhamni.—Can you, or any of your readers, tell me any other food-plant for Gonepteryx Rhamni besides the two buckthorns,—Rhamnus catharticus and R. frangula?

[I have said in 'British Butterflies,' p. 147, that the two buckthorns are the only shrubs on which Rhamni is known to feed. I have no later information on the subject; and it will be interesting if another food-plant should be discovered. I have seen the females hovering over an exotic evergreen in my garden, but could not find that she deposited eggs.—*Edward Newman.*]

E. C. Parker.—The capture of Leucania unipuncta or extranea has been already recorded (Entom. viii. 110).—*Edward Newman.*

J. Jones.—Phigalia pilosaria: Does it Feed on anything but Oak?—Will you kindly tell me through the 'Entomologist' if ever the larva of P. pilosaria feeds on anything but oak? as I have taken two males this season—one on a gas-lamp in January, the other in March—and there is no oak growing anywhere near.

[I know of no other food-plant, or should have mentioned it.—*Edward Newman.*]

F. H. Ward.—Lepismodes inquilinus.—In reply to your enquiry touching my note on this insect (Entom. viii. 120), the information will be most readily communicated by copying the *original* note, published in the 'Zoologist' for 1863, at p. 8496. It is as follows:—"*New Insect at the Friends' Institute.*—In our London houses two species of insects may be said to swarm; these are the cockroach and the cricket. Everyone knows an infallible cure for these pests, just as everyone knows an infallible cure for whooping-cough and lumbago; everyone recommends the cure to his afflicted neighbour; but every human body continues subject to the two complaints, and every human habitation shelters the two obnoxious fellow-lodgers. The third fellow-lodger, which I propose to call Lepismodes inquilinus, and to which I can give no English name, is confined, so far as my knowledge extends, to the building known as the Friends' Institute, 12, Bishopsgate Street Without. Its body is half an inch long, and it has antennæ and tails each half an inch long, or rather more, so that the entire length is rather more than an inch and a half. Like a judicious epicure it prefers the dining-room to every other apartment in the house, and, like an experienced pilferer, its rambles are entirely nocturnal, concealing itself behind the wainscot by day, and wandering about by night in search of such provisions as sugar, crumbs, and other comestibles. It seems to find no very secure footing on the varnished surface of the wainscoting, and this physical infirmity led to its detection, for, whilst perambulating the treacherous varnish, it frequently lost its hold, and was precipitated, headlong, into cups, saucers, sugar-basins, and slop-basins, and, once in, its infirmity of "poor" or non-prehensile feet effectually preclude its escape. The various household utensils which I have mentioned are now used as snares, and the numbers of our fellow-lodgers are thus thinned night after night."—*Edward Newman.*

Percy B. Gregson.—Name of Moth.—The moth represented in the drawing is Halias prasinana, the "common silver-lines." It is neither represented nor described in my 'British Moths,' because entomologists have placed it among the Micro-Lepidoptera, whereas that work only includes the Macros. This lovely moth is of very frequent occurrence near London, especially on oaks. I much wish entomologists making enquiries of this kind would always send sketches as Mr. Gregson has done; there is no difficulty in recognizing, and therefore none in naming, an insect thus accurately represented, whereas I find descriptions are generally useless. —*Edward Newman.*

J. C. Wesley.—Larvæ of Winter Moth.—I have no doubt the young larvæ are those of Cheimatobia brumata.—*Edward Newman.*

T. Benson.—Cocoon of Tenthredo Cratægi.—In 1872 I found the caterpillar of this cocoon feeding on the hawthorn. I cannot find the description of it in Newman's 'British Moths.' Will you kindly tell me what it is?

[It is the cocoon of a sawfly; not a moth. The name is Tenthredo Cratægi.—*Edward Newman.*]

W. Thomas.—Name of a Beetle.—I captured a beetle to-day (May 12th) on the wing, of a species quite unknown to me; and knowing that your columns of the 'Entomologist' are open for any information of the kind I require, I beg you will give me some help with the name of the species, which I am totally unable to ascertain, and of which I also enclose a coloured drawing. The colour all over is more of a dull coppery tint; but I found it rather difficult to arrive at the right hue.

[I have little doubt from the drawing that the beetle is Trichius nobilis; the colour of that insect is usually rather golden-green than coppery; but I have seen specimens in which the coppery tint prevails.—*Edward Newman.*]

Charles Wright.—Tiger, or Colorado Beetle.—I beg to send you for examination some examples of the Colorado potato-beetle, taken on paths in a wood near here, where they swarm. No one here has ever seen anything like them before; and our clergyman quite confirms my opinion that this dreaded enemy has at last arrived amongst us. If you are unable to decide yourself, perhaps you will permit some other naturalist to see them, and give their opinion. I shall look anxiously for your next issue, as I am not alone in wishing to take immediate and active measures.

[The beetles are Cicindela campestris, a carnivorous ground-beetle, commonly known as the tiger-beetle: they prey exclusively on living insects. The beetles are left at the printing-office, in accordance with the wish my correspondent has expressed that some other naturalists should give their opinion.—*Edward Newman.*]

R. J. S.—Name of Gall.—The beautiful gall is made by Cynips Ramuli. I have never met with it, although I have no reason to believe it uncommon.—*Edward Newman.*

Francis Owen.—Bramble Gall.—The gall is made by one of the Cynipidæ,—Diastrophus Rubi of Hartig and Schenck (not Rubi of Schrank),—and is common throughout England, generally, I believe, being found on the dewberry (Rubus cæsius); but according to Mr. Müller its galls have also been found on the common brake (Pteris aquilina). I have never met with any galls on the bracken myself, so should be very glad of specimens from anyone who comes across them. It, like most of the galls and gall-makers, is preyed on by parasites, the most common being a Eurytoma and a Callimome. The Eurytomæ I have bred in great numbers from galls obtained in different parts of the country: they were named, by Mr. Walker, E. rufipes and E. Rubi, which I believe are synonyms. The Callimome is C. macropterus, *Walker*. This gall is figured by Réaumur in his third volume, plate 36.—*E. A. Fitch.*

A Young Collector.—(1) The size of the pin should be regulated by the size of the butterfly: thus a swallow-tail requires a pin much larger than a blue. (2) The 'Label List of British Butterflies and Moths,' published by E. Newman, 9, Devonshire Street, Bishopsgate, at fourpence.—*Edward Newman.*]

Death of Mr. Davis.—William England Davis, the collector who discovered, and after whom I had the pleasure to name, Phycis Davisellus, died of consumption on Tuesday, the 18th of May. I knew Mr. Davis well as an ardent and most obliging entomologist.—*Edward Newman.*

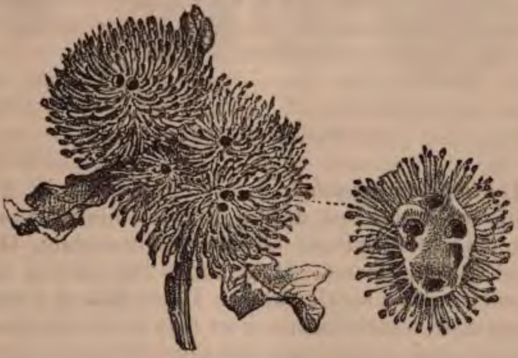
THE ENTOMOLOGIST.

No. 144.] JULY, MDCCCLXXV. [PRICE 6d.

Descriptions of Oak-galls. Translated from Dr. G. L. MAYR'S 'Die Mitteleuropäischen Eichengallen' by Mrs. HUBERT HERKOMER *née* WEISE.

(Continued from p. 122.)

Fig. 27.



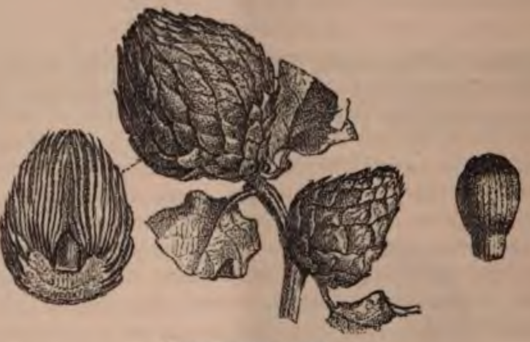
APHILOTHRIX LUCIDA.

27. *Aphilothrix lucida*, Hart.—The spherical, pale yellow gall which is found on shrubby Quercus pedunculata, Q. sessiliflora, and Q. pubescens, is generally about as large as a cherry, but sometimes is found as big as a walnut. Its whole surface is covered with stiff, stalky or fibrous projections, which stand out radiately, and terminate in a rusty red papilla. In section it exhibits a hard texture, with numerous egg-shaped cavities: in these live the larvæ of the gall-fly, without being separately enclosed in an inner gall.

The gall is not deciduous, and the flies appear in March or April.—*G. L. Mayr.*

Herr Kollar and Dr. Mayr both give Synergus melanopus as an inquiline of this gall. One specimen each of S. apicalis and Ceroptres arator have also been bred by Dr. Mayr from this gall, which has not occurred in Britain.—*E. A. Fitch.*

Fig. 28.



APHILOTHRIX GEMMÆ.

28. *Aphilothrix gemmæ*, L. (*C. fecundatrix*, Hart.).—This gall, in shape not unlike the strobile of the hop or larch, grows in the axils of Quercus pedunculata, Q. sessiliflora, and Q. pubescens. It is about the size of a cherry, seldom as large as a small walnut. It consists of a much compressed axis, to which the more or less hairy elongate scales are attached, and appear more densely crowded. The outside and lower scales are oval or oval-triangular; those lying on the top or inside are lance-shaped or thread-like. The egg-shaped inner-gall is situate at the end of the short axis; generally the scales surround it so completely that it is not visible at all, or at any rate only the top of it is to be seen. The inner gall is hard; has, when fully developed, a length of eight to nine millemetres, is flattened at its base, and shows at the opposite (upper) extremity a small circular impression, on which rests a very small cone with a shining vertex. If hindrances occur in its regular development it sometimes happens that this imprint, though near the top of the inner

gall, is placed sideways. The surface of the inner gall as well as the surrounding scales are red-brown, and frequently exhibits a very conspicuous longitudinal striation. The large, egg-shaped larva-cell lies in the interior. The inner gall falls to the ground in the autumn, and remains there through the winter. Finally, I must observe that in some instances the gall remains small, and the inner-gall is of a pale yellow colour, and only as large as a millet or hemp-seed; in such cases parasites are to be expected.—*G. L. Mayr.*

This species, which is common in Britain, is better known by Hartig's name, C. fecundatrix; the insect described by Linné being supposed to be a Synergus,—but this is doubtful. The inquilines inhabiting this gall are Synergus melanopus, S. evanescens, S. apicalis, and S. vulgaris; Dr. Giraud also gives Aulax fecundatrix (Bull. Soc. Ent. Fr. 1868); and according to Hartig, Andricus trilineatus is also an inquiline (Germ. Zeits. ii. 191): this last is probably an error. Eurytoma signata, Callimome inconstans, Megastigmus dorsalis (= Bohemanni), Mesopolobus fasciiventris, and Entedon leptoneurus, have been recorded as parasitic in the gall of this species. A Tortrix—Carpocapsa juliana—may be bred freely from these galls, the larva living in the imbricated mass of scales in the autumn. In order to breed the Cynips, inquilines, or parasites, great care must be taken to collect the galls before the inner gall falls; this generally happens in England towards the middle or end of August. The better way is only to collect the inner galls themselves; but if the Tortrices are wanted of course the leaf-bracts must be kept. It has been stated that the egg of this species is only laid in the fruit-buds; this is contrary to my experience, as I believe it is quite as frequently laid in the leaf-buds, if not exclusively so.—*E. A. Fitch.*

Notes on Oviposition. By the Rev. P. H. Jennings.

(Continued from p. 131.)

I HAVE much pleasure in forwarding you a few more notes on oviposition:—

Rumia Cratægata.—A female, taken May 26th, laid one hundred and thirty-four eggs: seventy-seven were deposited on the 27th,—thirty-four of these on the food-plant, common whitethorn (C. oxyacantha); the rest, forty-three, on the muslin cover; those on the food-plant were generally arranged side by side in rows on either surface of the leaves, the largest number in a row being eleven; many, however, were deposited singly; those on the muslin cover were more scattered than those on the leaves, and the arrangement less carefully adhered to. Thirty-seven were laid on the 27th, fifteen on the 28th, five on the 29th, and one on the 30th. Of the whole, fifty-eight were deposited on the food-plant, and seventy-seven on the muslin cover: oblong, equally rounded at both ends, greenish white, glossy, very slightly flattened on the upper and under surfaces. The young larvæ began to appear on the thirteenth day, June 9th.

Venilia maculata.—A female, taken June 2nd, laid nineteen eggs: twelve on the 3rd, and seven on the 4th; they were deposited on both surfaces of the leaves singly, and in clusters without any arrangement: oblong, equally rounded at both ends, grass-green, glossy. The young larvæ began to appear on the eleventh day, June 14th.

Ephyra omicronaria.—A female, taken May 22nd, laid fifty-one eggs: thirty-two on the 22nd, four on the 23rd, and fifteen on the 25th; of these four only were deposited on the food-plant, common maple (Acer campestris), on the edges of the leaves; one on the glass; and the rest, forty-six, on the muslin cover: oval, white with a slight greenish tinge, not glossy; assumed a reddish hue on the third day after deposition.

Asthena luteata.—A female, taken June 4th, laid thirty-three eggs: twenty-two were deposited on the 4th, and eleven on the 5th and 6th,—the former on glass, the latter on the earth: oblong, equally rounded at both ends, slightly flattened on the upper and lower surfaces, light green, glossy; a large egg for the size of the perfect insect. The young larvæ began to appear on the twelfth day, June 16th.

Acidalia remutata.—A female, taken May 24th, laid forty-seven eggs: twenty-five were deposited on the 25th, thirteen on the 26th,—all on the earth, some singly, some in small clusters,—nine on the 27th, seven on the glass, and two on the edge of a leaf of the food-plant, common hornbeam (Carpinus Betulus): oblong, slightly depressed on the crown, rounded at the other end, ribbed longitudinally, not glossy; assumed a beautiful rose-colour on the 4th. The young larvæ, which were very long and slender, began to appear on the fifteenth day, June 8th.

Cabera pusaria.—A female, taken May 22nd, laid thirty eggs: twenty-six were deposited on the 23rd, and four on the 24th; all on the glass or on the muslin cover: oblong, considerably depressed on the crown, rounded at the other end, light green, glossy. The young larvæ began to appear on the 12th day, June 4th.

Strenia clathrata.—A female, taken May 26th, laid fifty-four eggs on the leaves, stem, and flowers, of the common trefoil,—some on the upper, some on the under surface of the leaves, near the middle,—singly, and only one or two on each leaf: oval, considerably flattened on both surfaces, a beautiful bluish green, partaking very much of the colour of the food-plant. The young larvæ began to appear on the eleventh day, June 6th.

Aspilates citraria.—A wasted female, taken June 3rd, laid ten eggs: eight on the 3rd, and two on the 4th: oblong, pale yellow, considerably depressed on the crown, rounded at the other end; attached to the stems of the common trefoil; three singly, the rest in a row up the stem; all with the depressed end upwards; assumed a dusky brown colour on the third day. The young larvæ began to appear on the fourteenth day, June 17th.

Melanippe rivata.—A female, taken May 16th, laid sixty eggs: fifteen on the 16th, thirty on the 17th, seven on the 18th, and eight on the 19th; deposited on the tips of the leaves of the food-plant (Galium mollugo): oval, yellowish white, glossy. The young larvæ began to appear on the tenth day, May 26th.

M. montanata.—A female, taken June 4th, laid one hundred and fifty eggs: thirty-nine were deposited in the box on the 4th, forty-two on the 5th, twenty-six on the 6th, seventeen on the 7th, eighteen on the 8th, two on the 9th, and six on the 16th; of these, deposited from the 5th to the 10th, fifty were laid on the under side of the leaves of the common primrose (Primula vulgaris), and sixty-one on the muslin cover; attached very delicately to the points of the down on the under surface of the leaves, or to the finest fibres of the muslin: oblong, equally rounded at both ends, white, glossy. The young larvæ began to appear on the twelfth day, June 16th, and attached themselves to the lower edge of the leaves, generally with the anterior part of the body curled in after the manner of the Ionic volute, and apparently moving only to bend down to feed.

P. H. JENNINGS.

Longfield Rectory, Gravesend,
June 19, 1875.

The Plague of Locusts in America. By EDWARD NEWMAN.

THE Colorado potato-bug, although causing serious and perhaps not altogether groundless anxiety to our transatlantic cousins, has been a source of unalloyed pleasure and profit to ourselves. Doryphora 10-lineata, for so it is called, has brought more substantial sustenance to the penny-a-liners of St. Giles's and the Strand than Solanum tuberosum itself; more lasting fame to our natural-history scribes and wonder-mongers than the last new novel on Evolution. The half-starved literary hack; the fashionable novelist; the mystical purveyors of the grand results of scientific research; the slip-shod conversationist of society;—have equal cause to fall on their knees and thank Providence for this inestimable boon. But while we are thus paying this just tribute to the fertility of American soil and imagination, we are forgetting that America herself is suffering under the direst insect-scourge that ever afflicted the human race,—a scourge that has brought disease, desolation, dearth, and death, into thousands of once happy homesteads.

Until very lately we have rarely heard of locusts as one of the plagues of America. Egypt has long been celebrated as the mother and nurse of locusts, the seat and centre of locust devastation, whence the plague has spread east and west and south; the north only owes its immunity to the fact that the country is there bounded by the sea, which presents no harvest adapted to its requirings; and even northwards the locust has penetrated Turkey, Greece, Italy, France, and Spain, neither of which countries has enjoyed perfect immunity from the death-fraught visits.

By what route the locusts of Africa have reached the continent of Europe seems involved in some mystery; whether by the direct passage across the Mediterranean Sea, or the more circuitous course by the Holy Land, seems doubtful; but it is certain that locusts have visited Europe in force. In the year 591 a swarm visited Italy, pursuing their destructive career, and laying waste all before them until they reached the sea, in which they perished. The pestilence, arising from the stench, carried off men and beasts to the number of more than a million.

It were obviously foreign to my purpose to attempt the differentiation of the locusts of the Old Continent and the New; doubtless it would be easy to exhibit scientific characters, but Dr. Cyrus Thomas has lately performed the task in an exhaustive and masterly manner that leaves nothing to be desired. His work on the 'Acrididæ of North America' is one of the most complete monographs ever published.

There is a question of nomenclature about which I would raise my feeble voice,—the restriction of the words locust and grasshopper. In England we use the words interchangably, and attach no *particular* meaning to either. But in America the line seems drawn with great strictness:—"Everyone in this country," says Mr. Bethune, "is perfectly familiar with what is commonly called a 'grasshopper;' but how very few are aware that what they term a grasshopper, and see too often to think much about, is the same kind of insect as the much-dreaded, famine-producing locust, that constituted one of the plagues of Egypt, and that is an object of so much terror wherever it prevails. A true locust it nevertheless is; but it were well, for many reasons, that our people became accustomed to call it by its right name. Our common species in this province, while it does not possess the power of suddenly appearing in vast numbers and emigrating from place to place, occasionally becomes greatly multiplied, and proves very destructive. The western locust or grasshopper, however, differing but very slightly from our species, is, as we shall presently show, quite as formidable a destroyer as its oriental congener. While the true American locusts are commonly called grasshoppers, and the true grasshoppers are termed crickets, katydids, &c., another element of confusion is mingled with our insect nomenclature, by the common practice of giving the name of locust to a totally different insect, belonging to an entirely different order."

The care which Mr. Bethune has taken to establish the correct nomenclature, like the rules of the British Association for the Advancement of Science, instituted with a similar object, tends to increase rather than remove the difficulty in question. The terms grasshopper and locust have reference simply to magnitude; the smaller species being called grasshoppers, and the larger ones locusts. Until this is admitted there will be no solution of this difficult subject. However, there is no doubt that the locust of North America is the Calopterus spretus, a species of the class Orthoptera, and the family Acrididæ. In giving this creature the credit, or rather discredit, of all the mischief done in the United States, it is necessary to point out the existence of other and larger locusts in the United States, some of which attain an expanse of wing of nine or ten inches. The account given by Bethune of the ravages of Calopterus spretus is as follows, omitting the account prior to 1874:—

"*The Plague of Locusts in* 1874.—Let us now turn to the terrible visitation of the present year, from the effects of which so many thousands are now suffering the privations of famine throughout immense tracts of country. Last year (1873) the locusts or grasshoppers were stated to have inflicted considerable damage upon crops of various kinds in some of the Western States, principally Nebraska and Kansas; here and there also in Minnesota, Iowa, and Dakota, there were comparatively trifling visitations. But in the month of July of this year there began one of the most serious invasions that has ever occurred in the West. In point of numbers, and in extent of area affected, the plague was probably no greater than on some previous occasions, notably that of 1855 that we have referred to; the great difference, however, is caused by the fact that twenty years ago the country west of the Mississippi River was an almost uninhabited wilderness of prairie, while now it is traversed by a net-work of railways, covered with populous towns and villages, and occupied to a very large extent by multitudes of industrious people. Twenty years ago the locusts affected the food-supply, perhaps, of the buffalo, the Indian, and the scattered frontier settlers, but now their ravages cause destitution and misery in tens of thousands of homes. Up to the beginning of July this year all looked bright and fair for the western farmer. His crops of all kinds were, as a rule, growing luxuriantly; the prospect of a bountiful harvest was quite as good as usual. After that date, however, sooner or later in different localities, all these bright prospects were overclouded, in many instances utterly destroyed. The following extracts from various newspapers will abundantly tell the tale. As early as the 19th of July a correspondent of the 'Prairie Farmer' writes from Howard County, Nebraska:—'Corn and potatoes were doing well until recently, when the grasshoppers [locusts] put in an appearance, and the result undoubtedly is, at the present moment, that there is not ten per cent. of these crops and of late oats left in this and the two neighbouring counties; and it is very doubtful if the countless millions of Vandals will leave a vestige of any green thing. The result must be almost certain starvation for new-comers, and must retard the development of this beautiful country for many years.' A lady correspondent of the same paper writes a few days later from Butler County, also in Nebraska:—'"The low-hung clouds have dropped their garnered fulness down." But alas! and alack! they were not the long-looked-for rain-clouds, but grasshoppers. They passed over on the 23rd, only a few alighting; but a strong south-west wind on the 24th brought back countless millions; and on the 25th their numbers were fearful to contemplate. They would rise in the air when the sun shone hot, but as it grew cooler they came down like the wolf on the fold. They settled like huge swarms of bees on every living thing. Fields of corn that had been untouched before were now stripped of tassel and blade. A field of early corn was being eaten so fast that the girls went to save a few ears, instead of going to visit a sick schoolmate according to promise. Trees were so loaded with the pests, that those four and five feet high bent down till the tops touched the ground, and in some instances broke off; for three dreadful hours they dashed against the house like hail. So many came in at doors and windows that every aperture was closed; but not till they were so thick on the windows that we were forced to make a business of slaying. The 25th of July will be remembered by the citizens of this and some other counties as the dark day, when desolation and devastation stared us in the face. . . . . . The wheat, which was at first thought to be out of harm's way, was cut off about one-fourth by the destroying angels; a statement in our country paper says the average will be about eight or nine bushels per acre. After the grasshoppers stopped their depredations there were several damp, cloudy days that brought out new tassels and silks on the corn, but more than a week of hot, dry weather, with scorching winds, checked its growth; so there will be none, excepting a very few fields that partially escaped. Turnips have been grown since the rain; and it is to be hoped there will yet be some potatoes; sweet potatoes were not hurt so badly as the common potato. Broom corn, cane, and Hungarian grass, were unscathed.' A writer from St. Paul, Minnesota, to the paper above mentioned, says that the locusts 'have undoubtedly destroyed five hundred thousand bushels of wheat, and are likely to destroy another half million of bushels.' Later on in the season the St. Paul 'Press' publishes the following statement in reference to the plague of locusts in Minnesota:—'It is safe to estimate the tilled area in the ravaged district at two hundred and seventy-five thousand acres, and of the area in wheat in that district at two hundred thousand acres: of this area probably not less than one hundred and fifty thousand acres have been destroyed. This represents not less than two millions five hundred thousand bushels of wheat devoured in the germ by the grasshoppers, or about one-twelfth of the wheat crop of the state. Add to this area fifty thousand acres of oats, at thirty-three bushels per acre, or one million three hundred and twenty thousand bushels in all, or one-twelfth of the oat crop of the state; twenty thousand acres of corn, at thirty-two bushels per acre, three hundred and forty thousand bushels, or one-twelfth of the corn crop of the state; and perhaps twenty thousand acres more in rye, buckwheat, barley, potatoes, and other crops; and the full extent of the grasshopper havoc cannot be easily estimated.' Our readers may further judge of the extent of the calamity and sufferings consequent upon it from the following pastoral letter, issued by the Bishop of Minnesota, and appointed to be read in all the churches in his diocese:—'To the clergy and congregations of the diocese of Minnesota. You are aware that several counties of the State have been desolated by locusts. In May I visited Martin county, and saw the beginning of their ravages. I laid the facts before the governor. The plague has increased. Many homes are desolated. They have the right to look to us for relief. They are our own flesh and blood. They are our brothers. They are God's children. The scourge is an awful one. It may be for *our* sins. It may be to try our faith in God. It may be to test our humanity. I ask your prayers and your alms. I recommend that an offering shall be taken up on the last Sunday in July, and that a further special contribution of money and provisions shall also be taken at our annual harvest-home festival. Please send your offerings to Hon. Isaac Atwater, Minneapolis, who will send them to the committee in St. Paul. Praying God to bless you, your friend and bishop,—H. B. WHIPPLE.' Extract from a widow's letter in Brown county:—'I mortgaged my farm to get seed last spring. All is lost. What to do I do not know. It would take a tear out of a stone to hear the people talk. I had a nice piece of barley almost ready to cut. There is nothing left but the straw, the heads lying thick on the ground. Dear bishop, I am almost heart-broken, and nearly crazy, to think of the long, cold winter, and nothing to depend on. May God help us. May the Lord look to every orphan and widow, and put it in the hearts of his children to help. The widow must not plead in vain.' The bishop also issued a form of prayer for relief from the plague of locusts, to be used in the churches throughout his diocese. From the September Report of the Department of Agriculture, at Washington, we cull the following note from Kansas:—'The late summer and fall crops have been almost entirely destroyed by grasshoppers. The common jumping grasshopper did much damage through the early part of the season, but about the middle of August clouds of the flying ones made their appearance over the county, devouring and destroying vast quantities of vegetation. Gardens were quickly eaten up, corn-fields were stripped of leaves, and in many cases the corn was entirely eaten off; fruit trees are left with naked branches, and in many cases the half-ripened fruit is left hanging on the trees, presenting a sickening sight of death and destruction. In addition to the actual loss by devastation, the loss caused by discouragement will be greater.

Years of patient waiting, hard work, and self-sacrifice, have been destroyed in a few days, with no known remedy for protection; just as the fruits of labour were beginning to be realized, destruction came; and the question with many is: "Is it of any use to try again?" Here is a field for the Department of Agriculture. Some method of protection or relief must be had against the destruction of this insect, or an immense tract of magnificent country will never be what it would without this curse. I am one of those who believe all such things may be controlled by some practical method; it only requires study, enterprise, and means to learn how. This county (Doniphan) could well afford to pay 100,000 dollars for a guarantee that no grasshoppers should ever trouble it again. I have learned that vegetation highly cultivated and growing vigorously is less liable to be destroyed than when on the decline or growing feebly. Thus it is we often see a single tree in an orchard eaten even to the bark, while others of the same variety are not damaged so much; and upon examination it will be invariably found that those mostly eaten were diseased, or had their vitality in some way impaired. This thing was noticeable when the same kind of insects were here six or seven years ago. Of all fruit trees, apple and pear trees suffer the most, while peaches, plums and cherries suffer the least. They eat the leaves off the apples, and leave most of the apples on, but of the peaches they will eat the fruit and leave the foliage; but in many instances, when vegetation is not plenty, I understand they clean all as they go; and I have seen instances of this kind. The damage to vineyards in this county is not so great. They do not seem to relish grapes, and are satisfied by eating off the stems and letting the bunches fall to the ground. There will not be enough corn in this county to feed what stock there is in the county as it should be fed.' The same report states that 'the plague'—as it justly terms it—is reported in two counties in Wisconsin, seven in Minnesota, five in Iowa, four in Missouri, thirty in Kansas, and seven in Nebraska. It adds that 'the wide-spread destruction which they (the locusts) have caused in the north-west has not been adequately described. In many places large masses of people will probably suffer during the coming winter for the necessaries of life, their crops having been swept by this remorseless enemy.' The next monthly report (that for October) records the prevalence of the plague in two more counties in Minnesota, two more in Iowa, four more in Missouri, four more in Kansas, four more in Nebraska, three in Texas, two in Colorado, and one in California. The following letter from Kansas is recorded 'to give some idea of its ravages:'—'The farmers in my county had their land for wheat prepared in good time, and in a better condition than I ever saw. On the 6th of September the grasshoppers made their appearance all over the county. Farmers became alarmed, and did not sow any wheat. About the 18th to the 20th they appeared to go away. Farmers commenced sowing, and got in about two-thirds of their crop. On the 28th and 29th they came the second time, filling the air, reminding one of a snowstorm in December. Some who had sown early had wheat up nice, but you cannot find a spear in any place. Wheat which was sown before the grasshoppers came the first time has been eaten down, until the grain has finally ceased to grow. I am candidly of the opinion that every acre which is sown to-day in this county will have to be sown again. There is no other chance for it; and the great trouble will be that so many of our farmers have sown all their seed, and are not able to buy again. And what will they do? Some who have not been two years on their claims are leaving them, and going over into Missouri and Arkansas to winter, to find something to live upon.' We might go on to an almost unlimited extent with similar descriptions of the wide-spread devastation caused by these insects, and the consternation they have produced throughout the west. Every agricultural newspaper and a large number of city papers have published throughout the past season similar records of ruin and suffering. To assist their brethren in the afflicted regions, large sums of money have been contributed both by State Governments and by individuals; but it is greatly to be feared that the utmost liberality will hardly save from ruin, though it may relieve temporarily, many farmers who had recently settled on those hitherto attractive plains. Not only, it should be remembered, have they suffered from a dire plague of locusts, but they have also been the victims of a long-continued drought, accompanied in some localities by a terrible hot wind, resembling the *sirocco* that blasts Southern Europe with the dry heat of the African desert. To add also to their series of calamities, the chinch-bug destroyed in many places those crops that the locusts spared."

EDWARD NEWMAN.

(To be continued.)

Entomological Notes, Captures, &c.

Captures in Somersetshire.—Lately I have become the possessor of Newman's 'British Butterflies,' and am somewhat surprised to find this county mentioned so seldom. I attribute it to the fact—as Mr. Corbin states in his paper in the 'Entomologist' (Entom. viii. 139)—"that unworked localities, when brought under the inspection of the entomologist, often produce the greatest number of rarities." In our (this) neighbourhood I am continually finding species I had no idea were to be found: *e.g.*, in the autumn of last season I had the good fortune to turn up a pair of Lycæna Corydon, in good condition, in Orchard Wood, near this town, where no chalk was nearer (to my knowledge) than Dorset; true there is a lime-quarry about a mile or two from the wood. Last week in the same wood I was gladly surprised to take a pair of Melitæa Artemis in splendid condition; a few specimens were taken by Mr. A. J. Spiller in 1865, but I have visited the locality regularly, and have no knowledge of its having turned up since until last week. A few days afterwards I happened to be hunting in the Neroche Forest, or, I should say, on the marshy grounds around the forest, and took fourteen specimens of M. Artemis, and could have taken dozens more, but all my boxes were filled with Nemeobius Lucina, Thecla Rubi, Leucophasia Sinapis, and Fidonia Atomaria. Now, M. Artemis might annually be found in Neroche, but last week was my first visit to the place; probably as the season advances I might turn up some other insect unknown as a Somersetshire species. Unfortunately, I am unable to visit the forest after dark: it is some distance from the town, but I have heard of Eurymene dolobraria, Angerona prunaria, and Geometra papilionaria, having been taken there. Last season I took G. papilionaria, A. prunaria, Thyatira Batis, and Gonophora derasa, at Orchard Wood.

The season promises good captures. I took a fine specimen of Xylomiges conspicillaris in Gower (South Wales) last month. Amphydasis prodromaria has been very plentiful around this town. Macaria alternata occurred a year or two ago in two localities around here; and in 1865 Colias Edusa literally swarmed at Orchard Wood; and Colias Hyale appeared singly. Vanessa Polychloros occurs annually; and a fine specimen of Vanessa Antiopa was taken near Bridgwater some two years since. I took Sphinx Convolvuli last season; and a friend of mine took Cymatophora ocularis. I have written this chiefly on account of Mr. Corbin's paper; and should this meet the eye of any entomologists coming in the neighbourhood I should be most happy to give them further information; or if you require a list of the insects of Somersetshire, I should be most happy to furnish it.—*Frederic Stansell; 45, Alma Street, Taunton, Somerset, June* 13, 1875.

[I shall feel obliged for such a list, but cannot promise its insertion at present. In no case can I admit mere names. They must be accompanied by dates, localities, and other interesting circumstances.—*Edward Newman.*]

Bait for Apatura Iris.—In very good seasons this beautiful butterfly frequents a wood in the neighbourhood; but to catch it on the wing is, as all know, a very difficult task, owing to the strength and swiftness of its flight. Several plans have been suggested for luring it into the net: amongst others that of throwing a stone or piece of tin into the air, which the pugnacious insect is said to chase on its descent, thus being brought within reach; then there is that of nailing a dead animal to a tree or paling near its haunts,—and this latter is reported to have been eminently successful, but my own experience has been the reverse; and my reason for now writing is to ask you, and other entomologists whose labours may have been attended with more fortunate results, kindly to give me a hint or two. My brother has taken from time to time several specimens flying, principally females. One male he caught feeding on some excrementitious matter with great avidity; but never have the dead animals possessed any attraction.—*Joseph Anderson, jun.; Alresford, Hants.*

[I shall be delighted to record the experience of others. Although I have said so much about the capture of this magnificent insect, I never had the pleasure of taking it myself.—*Edward Newman.*]

Larva of Apatura Iris.—On the 8th of June I received from Lyndhurst a fine larva of Apatura Iris, taken on the 7th by Mr. J. Ives. It is said to be the first example of the species in any stage that has been taken there for many years. It appears now to be preparing for pupation, and is attached by its first pair of claspers and by the anal pair to a thickish pad of silk, spun at the junction of two twigs of its food-plant. It has been in this position for two days. Perhaps next spring I may again fall across the species; and should I do so I will not fail to send you examples.—*Bernard Lockyer; 204, Euston Road, N.W., June* 13, 1875.

Colias Hyale in May.—On May 31st I took a specimen of Colias Hyale (pale clouded-yellow) on the Arundel Road, near Clapham Common, about four miles from Worthing. I mentioned it to Mr. Pratt, the naturalist at Brighton, and showed him the specimen, which is a very good one, evidently of this year's brood.—*A. E. Hunter; Christchurch Vicarage, Worthing, June* 15, 1875.

Early Appearance of Colias Hyale.—On June 16th my friend Mr. A. T. Cobbold took a fine specimen of Colias Hyale, apparently but just out. It was flying by the side of a river within a mile of this town.—*E. F. Bisshopp; Ipswich.*

[Several other records of the capture of Hyale in May, and one of Helice, have reached me.—*Edward Newman.*]

Food-plants of Gonepteryx Rhamni.—Boisduval, in his 'Species General,' gives Rhamnus catharticus, Frangula, and Alaternus: this last is an evergreen shrub, not found growing wild in the United Kingdom, but which has been extensively introduced into garden planting. Mr. Jenner Weir has recorded finding larvæ of G. Rhamni on the variegated variety, and I also have observed them on an ordinary specimen. I had often seen females hovering about a scrubby Alaternus in a warm corner of my garden; and on the 22nd of May last year observed one deposit several eggs. These duly hatched, and on the 22nd of June nine larvæ were feeding on the young leaves, some half grown, some smaller; showing that the eggs had not all been laid at the same time. The larvæ are very sluggish and inconspicuous when young, but when about three-parts grown they are easily distinguished, and move about,—probably for fresh food, as they never seem to entirely consume a leaf or to touch an old one. No doubt they are picked off by birds, as they gradually diminished in number; and only two, which I protected with muslin, reached the pupa state. This year also there were several eggs on the same plant; and on the 30th of May three larvæ about half an inch long were feeding. The variety Cleopatra is said usually to feed on R. Alaternus; possibly that plant may be more abundant in Southern Europe than R. catharticus and Frangula. This variety and the typical Rhamni have been stated to have been reared by Dr. Boisduval from "one brood;" whether this means from eggs laid by one female or from larvæ found feeding on one plant, I do not know; if the latter, it would be no proof that they are the same species, as the eggs are laid singly, widely apart, and there is not the slightest reason to conclude that the eggs on one plant are all laid by one female; the probability is, in fact, the other way, for the butterfly is plentiful, and flies from shrub to shrub, depositing only a few eggs on each, even when the shrubs are comparatively large. —*N. C. Tuely; Mortimer Lodge, Wimbledon Park, June* 5, 1875.

Lycæna Acis near Cardiff.—On Saturday last, the 4th of June, I had the pleasure of taking one male specimen of Lycæna Acis, at Penarth, near Cardiff, South Wales. Last year I captured ten specimens (eight males and two females). *Alfred F. Langley; Cardiff, June* 10, 1875.

Pale male of Bombyx Quercus.—I had the good fortune to capture in July, 1874, a male Bombyx Quercus, exactly the colour of the female. I think this variety is very scarce.—*John Sumner; Halsall Moor, Ormskirk, Lancashire.*

Chœrocampa lineata in Glamorgan.—On May 27th I had a specimen of C. lineata brought me alive. It was taken in a cottage in this town.—*Evan John; Llantrisant, Glamorgan.*

Food-plant of Phigalia pilosaria (Entom. viii. 142).—I see in the 'Entomologist' for June you say of Phigalia pilosaria that you "know of no other food-plant" than oak. I bred a good many from the egg in 1873—4: they eat not only oak, but plum, pear, hawthorn, and wych-elm; preferring plum to all the rest.—*John T. Boswell* (formerly *Syme*); *Balmuto, Kirkcaldy, N.B., June* 1, 1875.

[Mr. Doubleday, also, in a private letter dated 3rd June, says that it feeds in Park Hall Woods on hornbeam, birch, sallow, aspen, &c.; and in his own garden, at Epping, on plum, apple, whitethorn, rose, &c. In this matter I have made a palpable and inexcusable blunder, but it arose from infirmity of memory and haste rather than ignorance. In an *old* number of the *old* series of the 'Zoologist,' I have told the marvellous life-history of this moth, and I think for the first time in this country; but as my observations have not hitherto appeared in the 'Entomologist,' I hope I shall be excused for the decided egotism implied in reprinting my own lucubrations: it will be seen that so far from giving oak as the only food-plant of Pilosaria, I have omitted the forest monarch altogether.—*Edward Newman.*]

Description of the Larva of Phigalia pilosaria.—The eggs are laid in crevices of the bark of Carpinus betulus (hornbeam), and some other forest trees, very early in the spring, and are hatched before the leaves begin to expand. The young larvæ find their way to the buds, and continue to feed on these until the leaves expand, previously to which they grow very slowly, but no sooner are young leaves available than the larvæ feed on them voraciously, and are full fed by the end of May or beginning of June, when they rest in a nearly straight position, but with the back slightly arched; they neither fall off the food-plant nor feign death when disturbed. The head is prone, of less circumference than the body, and notched on the crown. Body of uniform circumference, beset with numerous conspicuous warts, scarcely amounting to humps; each of these warts emits a strong, but short bristle, which terminates in an extremely fine point: the situation of the warts I will describe:—On the 2nd, 3rd and 4th segments they are small and insignificant; on the 5th segment are two placed transversely on the back, and one on each side, but these are still inconspicuous, although manifestly larger than those on the preceding segments; on the 6th and 7th segments, in the same position, are two dorsal and two lateral warts, all much larger; the same number and arrangement of warts obtains on the 8th, 9th, 10th and 11th segments, but all these are small, as on the 5th segment; on all these segments, that is, from the 5th to the 11th inclusive, there is a minute wart in advance of each principal wart; on the 12th segment are two transversely placed and rather prominent dorsal warts, and two minute warts behind them: every wart terminates in a bristle. Head slightly hairy, opaque brown, with two paler, transverse, waved markings across the face. Body sometimes yellow-green, but generally brown, with the warts black, and a few yellow markings, *viz.*, on the 2nd segment a transverse mark immediately behind the head; on the back of the 3rd and 4th segments two approximate stripe-like markings, and an amorphous mark in the region of each lateral wart. It descends to the ground, and changes to a smooth pupa just below the surface of the earth, during the first week in June; and the perfect insect appears in January or February following.—(Zool. 8782.)

Larvæ of Xylophasia scolopacina.—I have to record the capture by myself and two friends of over three hundred larvæ of Xylophasia scolopacina, in woods, at Hampstead and Highgate, between the 1st and 3rd of June. I believe this is the first recorded capture of the insect, so far south, in any stage, though the fact of its occurring near London must have been known to many entomologists for some years. My friend Mr. V. B. Lewes took a number of the imagines in July, 1870, at Bishop's Wood, Hampstead; and in the same year I took a few at Highgate; and I expect others must also have captured the species in these localities. The larvæ are rather local, and are most abundant in little sheltered nooks amongst the bushes just off the main rides, near the outskirts of the woods. They are most easily found at night, but can also be taken in the afternoon. They are very fond of biting through a stem of grass about half-way down, and then eating downwards from the point where they cut the stem. Does the species also occur in the woods on the south side of London? I have never seen the imago at sugar; but it is abundant at the flowers of the bramble during July. The larvæ are now full fed, and most of mine have buried.—*Bernard Lockyer; 204, Euston Road, N.W.*

Knautia or Scabiosa (Entom. viii. 133)?—It is not often that I have occasion to differ from my friend Mr. Melvill on botanical matters, but in the case of the habitat of Knautia arvensis I think it very likely that Mr. Gregson may be right, and I do not think anyone could confound Knautia and

Scabiosa. I have often seen the former on heathy hill-sides, far away from corn-fields, in the greatest profusion, growing amongst bracken and furze-bushes. If Mr. Melvill will go with me some afternoon in August to Cobden Edge, above the Strines Valley, Derbyshire, I shall be very glad to show him Knautia in perfection, in the sort of place I have described; and perchance we may find not only the larva of E. Knautiata, but many other things worth the ramble.—*Joseph Sidebotham; Southford, June* 5, 1875.

Ophiodes lunaris in Sussex.—When I was in Sussex last month, a friend, with whom I was out sugaring, fortunately captured Lunaris, as it rose up from the underwood, and he most kindly presented it to me alive on the spot. It is a fine male specimen in good condition, except a slight chipping of the wing.—*W. H. Tugwell;* 3, *Lewisham Road, Greenwich, June* 16, 1875.

Valeria oleagina in Hertfordshire.—Seeing that in Newman's 'British Moths' it is stated that "the green-brindled dot (Valeria oleagina) is extremely rare, and that no recent captures had taken place," I beg to say I have one that came from its chrysalis about a week ago. I cannot say where I obtained the chrysalis, as it was taken with numbers of other kinds from the tree-roots during the winter. Should you think it worth sending for I will forward it to you, if you will let me have it again.—*Benjamin Brown; Deards End Farm, Knebworth, Herts, June* 17, 1875.

[Pray send the specimen by private hand, and let the bearer take it back. I should be sorry to take the responsibility of having so rare an insect in my possession.—*E. Newman.*]

Catephia alchemista in Sussex.—On June 4th I took a specimen of C. alchemista at sugar, in a large oak wood in this county; it was about half-past ten o'clock. As there were no circumstances of the least peculiarity or interest connected with it, and the specimen closely resembles the figure in Newman's 'British Moths,' I have nothing further to add about it. I shall be glad of information from entomologists as to its foreign habitats, if any are known.—*W. Borrer, jun.; Cowfold, Horsham, Sussex, June* 18, 1875.

Moths at Cotoneasters.—It may not be generally known to your readers how wonderfully attractive the flowers of Cotoneaster microphylla are at this time of the year to moths, particularly Noctuæ. The shrub is now in full bud, and is already crowded with Agrotis Segetum, A. exclamationis, &c. When in full blossom, later on, I have found Aplecta advena, Leucania conigera, and Mamestra anceps, frequenting it in great numbers, as well as stray specimens of better species. I first discovered the intoxicating power of these flowers last year by noticing the countless numbers of bees they attracted during the day. I am not aware whether the shrub is at all common in gardens; but the three or four I work were planted two years ago in a very heavy soil, and thrive wonderfully.—*Gilbert H. Raynor; Hazeleigh Rectory, Maldon, June* 19, 1875.

Visitors to the Trees sugared for Moths.—To the well-known visitors to sugar I can add the great green grasshopper (Acrida viridissima): I suspect it came to feed on the moths, not on the sugar. At Deal I once saw one eating the body of a moth; the moth meanwhile sucking up the sugar as if nothing were amiss. At Bishop's Wood, Hampstead, I used to see a smaller representative of the great green grasshopper (Meconema varia, I believe), which certainly took the sugar. I am almost sure I saw the dormouse often at Bishop's Wood at sugar. I never tried to catch them, but remember admiring their fuzzy tails, so that I do not think I mistook longtailed field-mice for them. The longtailed field-mouse I never saw at sugar. Here they abound, to the detriment of my excursions; but though I have sugared every summer for six years, I have not seen one at sugar.—*John T. Boswell* (formerly *Syme*); *Balmuto, Kirkcaldy, N.B.*

On Polydrosus sericeus.—With the exception of one specimen, captured near Winchester last year by Mr. W. A. Forbes, I believe this beetle has not been taken in England for upwards of forty years; and even previous to then it would seem not to have turned up very abundantly. The National Collection in the British Museum only contains three specimens,—two perfect, and one mutilated. My friend Mr. F. Smith possessed one pair in his private collection, which were given him by the late Rev. Mr. Rudd, rector of Kimpton, who took them in this neighbourhood. The insect was quite unknown to me until Mr. Smith kindly pointed out its distinctive characters when examining the specimens in the British Museum. Beyond the fact of its being captured in a wood near here, I could glean no information respecting its economy; therefore did not know on what particular plants, if any, it should be searched for. On the afternoon of Sunday, May 30th, accompanied by my nephew, I took a walk to the wood in question, and, after searching diligently for a couple of hours, I took one female. On the following evening, provided with a net each, I and my nephew took eleven specimens, nearly all males. The next evening I went alone, and took fifteen Polydrosi, but chiefly males. On June 3rd, between seven and eight o'clock, P. M., my nephew and I took sixteen (the majority of which were also males), making a total of forty-three. Since then other business has prevented my searching for more specimens; in fact, I have no ambition to take any more in one season, now that I know where to get them at the proper time when wanted. Of its economy all that I could ascertain from so short an acquaintance was that they were beaten almost exclusively from birch in one particular part of the wood. Whether they feed on the leaves, either in the larval or imago state, I cannot say; all I know is that it was useless beating any branches except those on which the leaves were much eaten by some insects. On flourishing branches, where the leaves were entire, no Polydrosi turned up. Time of appearance: from my experience of one season it would appear that the last week in May and the first in June should be taken advantage of to hunt for the insect. In habits it seems very lethargic, crawling slowly up the side of the net, and not running with the celerity of most of its congeners. It is also difficult to put in the cyanide bottle, as it clings to one's fingers, or anything its hooked claws come in contact with. These claws seem admirably adapted for holding on to the smooth surface of the birch leaves, especially during high winds.—*Henry Reeks; Thruxton, June* 11, 1875.

Answers to Correspondents.

John Sumner.—Amphydasis Betularia.—I have a very curious moth, exactly like the figure I enclose,—all black, except a white dot at the anal angle of the fore wings.

[The figure represents Amphydasis Betularia *var*. Mauraria. —*Edward Newman.*]

J. W. Mills.—Chelonia villica.—I do not know whether the cream-spotted tiger (A. villica) is generally abundant or not this year, but we have managed to find ten of these insects within the last few days. They seem to frequent elm-edges with plenty of grass and undergrowth.

[I have not collected for many years, but formerly I used to meet with Villica commonly, but never abundantly; and the larva much more frequently than the imago.—*Edward Newman.*]

F. G. Phillips.—Singular Gall.—I discovered to-day some oak-galls, the outer crust of which appears to have been eaten off by some insect. Never having myself noticed a similar appearance, and thinking it might interest you, who would doubtless be able to explain the cause of the irregularity, I beg leave to enclose you a specimen.

[I have opened the specimen sent, and find it composed of silky fibres; the interior was occupied by a large cell, in which a large, smooth, green caterpillar was reposing, and appeared about changing to a chrysalis, its markings being very obscure, as is frequently the case before changing. The gall, popularly known as "King Charles'" or the "oak-apple," has much the same appearance; the substance has a similar woolly character to that of the object now received; but the question arises whether the caterpillar so comfortably installed in the interior had any part in producing the gall. I feel unwilling to pronounce; the multiplicity of inquilines found in the oak-apple is truly marvellous. I think shortly to publish some account of them, from a list prepared by the late Mr. Walker; and doubtless it may be considerably extended, as the observations of one entomologist are scarcely likely to exhaust so prolific a subject.—*Edward Newman.*]

S. L. Mosley.—To rear Galls.—Would you tell me of some good plan to rear gall-insects? When I pluck soft galls and keep them in tin-cans they generally come to nothing, but mould and rot away.

[Will Mr. Fitch kindly reply.—*Edward Newman.*]

S. L. Mosley.—Diptera.—Would any person volunteer to name Dipterous insects? Also, is there such a thing as a complete list of Diptera published?

[Volunteers are requested to reply. There is a list of British Diptera published by the British Museum.—*Edward Newman.*]

Henry Reeks.—Fallen Pears.—I am sorry to have had this matter so long in hand without giving a definite reply.

It is very humiliating to find oneself baffled in all attempts to obtain the solution of a problem that never ought to have been a problem at all. Pears of every kind fall by myriads just after they are supposed to be knit; and this is a phenomenon that calls for a remedy, but hitherto has called in vain. It is obvious that when the fruit has fallen it is too late to suggest a remedy for that year; but it is also obvious that the fallen fruit must in themselves contain the enemies, and therefore present the opportunity of destroying them by wholesale, and thus prevent the perpetuation of the race. If we cut open a pear,—an infant pear, we will call it, for they all when thus attacked perish in infancy, —we find the interior occupied by small maggots of a pale hue, but yet not quite white: these come out in a few days, and congregate together on the surface of the glass, with which the vessel containing them may be covered; this exodus is probably preparatory to a retreat under ground for the purpose of undergoing metamorphosis. Nothing can be well easier than collecting the fallen pears at this season, and burning them; this summary process must destroy the parent-fly for the next year at least, always assuming that no flies will visit your orchard from other orchards, which I see no possible method of preventing. But I have not yet said to what class and order these flies belong, and here we must have recourse, as usual, to Kirby and Spence. From these high authorities we find that Mr. Knight —I presume the late Andrew Knight, of Downton Castle— attributed the mischief to a small four-winged fly. Kirby and Spence suggest that this was a sawfly,—a suggestion that is strongly corroborated by an observation of my own, for on cutting open a number of these fallen pears, sent me by Mr. Reeks, I find them inhabited by the larva of a sawfly of minute, but unmistakable, proportions. In opposition to this view I have received from Mr. Fitch a communication stating that two species of Sciara and one of Cecydomia destroy the embryo fruit of the year. The Sciara is most destructive; and the species are S. Pyri and S. Schmedbergii. Cecidomyia might also infest pears when fruiting, but I hesitate to say much respecting it; indeed, I feel that my knowledge of the subject is very meagre and unsatisfactory, and I only allude to it under the impression that I may possibly elicit information from others.—*Edward Newman.*

THE ENTOMOLOGIST.

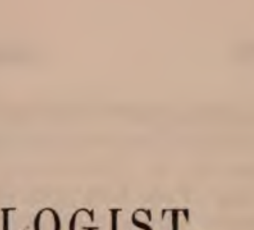
No. 145.] AUGUST, MDCCCLXXV. [Price 6d.

Descriptions of Oak-galls. Translated from Dr. G. L. Mayr's 'Die Mitteleuropäischen Eichengallen' by Mrs. Hubert Herkomer *née* Weise.

(Continued from p. 147.)

29. *Aphilothrix solitaria*, Fonsc. (*C. ferruginea*, Hart.).—This woody, spindle-shaped gall is developed either without a pedicle, or with a short and thick one, on the axillary buds of Quercus pubescens and Q. sessiliflora. It is surrounded at the base by small bud-scales, and terminates in a style, which varies in length, and is often curved at the top: the blunt point of this style generally bears a small papilla or short cone. The gall is brown, and when fresh more or less covered with a yellowish brown wool. In the interior of this moderately thin, but hard gall, we find a large oval cavity, which is the larva-cell. Its longest diameter is one centimetre. The fly emerges in September, for on the 28th of that month I found on the oaks fresh galls of this species, showing the hole through which the fly had emerged.—*G. L. Mayr.*

Fig. 29.



Aphilothrix solitaria.

Three different species of Synergus are dwellers in the galls of this species, namely,—S. facialis and S. radiatus, which emerge in July; and S. vulgaris, which lives in the gall through the winter, not emerging till April of the next year. From one hundred galls of this species, collected by Von Schlechtendal, only four produced the gall-maker; the others containing either its inquilines or parasites. The only Chalcid I can find recorded as parasitic on this species is Eupelmus azureus, by Ratzeburg, in his 'Die Ichneumonen.' Like many of the bud-galls this species has been confounded with many others by different authors, more especially with A. albopunctata; in fact these species were only satisfactorily separated in 1865 by Schlechtendal, and then he afterwards mistook them the one for the other. This gall was first described as British by Mr. Cameron (E. M. M. x. 85), under Hartig's name, Ferruginea, who found them in Cadder Wood, near Glasgow. I have also received the true Solitaria from Mr. G. B. Rothera, who, with his friend Dr. Ransom, has found it in Nottinghamshire.—*E. A. Fitch.*

The Breeding of Gall-flies. By E. A. Fitch, Esq.

The flies may be bred from some galls very readily by merely placing them into a chip or any other box, and letting them bide their time, but others require more attention and care, *e.g.*, the succulent galls of Baccarum (the currant oak-gall), Curvator (the kidney oak-gall), Terminalis (the common oak-apple), Megaptera (the oak-trunk gall), and many others, which if collected in damp weather, or are slightly immature and full of sap, are almost sure to mould; in such cases the better way is to leave them in the room for a day before putting them away, and then to remove their covering every day for a short time. I have found the thistle-gall of Urophora Cardui very troublesome.

The plan which recommends itself I think before all others is one used I believe extensively by the breeders of Micro-Lepidoptera, and which answers for galls admirably; that is to procure some common gallipots and rub them down, so as to have a smooth edge, on which a piece of good glass will fit closely, and in this receptacle, which will be almost air-tight, the galls may be kept; it is very convenient also for examination, as the presence of mould or the exit of insects may be seen at once, and the escape of the flies, if the pot be ground smooth, will be impossible, which is not always the case with various boxes; of course anything may be substituted for the gallipot, if it has a smooth edge and flat top.

Care should be taken to have the receptacle very dry, and not to cause the condensation of vapour inside by leaving it in the sun.

When we are breeding from galls produced by sawflies (Tenthredinidæ), which occur almost exclusively on various species of willows, or some gall-gnats (Cecidomyidæ), we must have a small quantity of baked earth in the bottom of the jar, as their transformations are subterranean. Great care is necessary in breeding the various insects from galls, because the habits of some of the Cynipidæ, Chalcididæ, Ichneumonidæ, &c.,—all of which are freely bred from galls,—are such that they may very easily be introduced into the gallipot, and on their emergence of course are labelled as inhabitants of the galls themselves: for instance, how easy to introduce some half-dozen Aphides (plant-lice), which probably each contain an Allotria (Cynipidæ) or Aphidius (Ichneumonidæ); then, again, there are the numerous Chalcids and Ichneumons, which are parasitic on leaf-mining Diptera, Hymenoptera, and Lepidoptera; the leaf-miners themselves are also very liable to cause confusion; and when we remember that Mr. Walker bred examples of seventy-five different species (hundreds of specimens of some) from one species of gall in one year,—and these belonging to *seven* orders of insects, besides Arachnida and Acari,—it is evident the breeder of gall-flies (by this I mean, here, the different insects inhabiting galls) will find quite enough to occupy his attention without the interlopers.

After we breed the insects, and when we perhaps see the glasses of some twenty gallipots swarming with flies, we want to know how to preserve them well and quickly: this will best be accomplished by procuring a small basin of boiling water, and by holding the glass some little distance above, and giving it a tap, the greater part of the insects will fall or jump into the water with their wings and legs extended; then collect them on small pieces of paper—thick blotting, I use—and pull their antennæ, wings, legs, &c., out, as best suited for examination, and so leave them for a day, when the dried insects will fly off the paper at the least touch from a small knife or even pin; they may then be arranged on cut pieces of card-board (not too thick) with gum tragacanth, and so pinned,—separate species on separate slips; this is not much trouble, as the insects may be killed and set quickly, and gummed of an evening or at any leisure time: when nicely set they are fit to be called specimens, and are useful for examination, which probably would not be the case were they left to die a natural death, or attempted to be pinned and set out.

One word of advice and caution: label everything very carefully; for breeding purposes only use the galls themselves,—no leaves, no twigs, no anything; in killing and setting be very careful not to mix specimens and species from different galls. This must all be attended to, in order to solve some of the interesting problems connected with parasitism and galls.

I have only spoken of the breeding of insects from mature galls, as that is only what should be attempted; but in special cases I dare say the gall might be kept by preserving the twig or plant in water, as we should a flower, till it comes to maturity and the larvæ have a chance of becoming full fed; then detach the gall. I have never attempted to breed insects from immature galls but once, and then in ignorance: it was with the common oak-spangles (Neuroterus lenticularis), which I collected in the autumn and winter from the trees, but could never breed the Neuroterus, till last year I collected galls from the ground at the foot of oaks in January and February, and so bred the gall-maker freely; and that is what must be done with this species and Fumipennis; it does not so much matter with the pretty little Numismatis (silky button-gall).

Galls should not be thrown away when the emergence of one series of insects is complete, as some will have tenants for a twelvemonth; the gall-makers, and various inquilines (dwellers in galls) and parasites, having various and separate times of appearance.

E. A. Fitch.

Maldon, Essex, July 1, 1875.

Notes on Oviposition. By the Rev. P. H. Jennings.

(Continued from p. 150.)

Selenia lunaria.—A female, taken June 8th, laid one hundred and ten eggs: twenty-eight on the 9th, forty-two on the 10th, thirty on the 11th, one on the 12th, seven on the 13th, and two on the 14th; of these one only was deposited on the food-plant on the under surface of a leaf, sixty-two on the glass cylinder, and forty-seven on the muslin cover. Oval; yellow; smooth, but not glossy; all detached from one another.

Iodes vernaria.—A bred female laid one hundred and forty-eight eggs: on June 29th seventy-three, and thirty-three on the 30th, fourteen on July 1st, fourteen on the 2nd, seven on the 3rd, and seven on the 4th; these were laid in thirty-five different piles, the piles varying in number of eggs from one to seven, almost always attached to the stem of the food-plant, traveller's joy (Clematis vitalba). In shape the egg is nearly circular, a little longer than broad, perfectly flat on both surfaces, with very sharply defined rims; the piles are made with the greatest regularity, so that the rims exactly coincide. Colour bright green; sides glossy, and surfaces of the finest polish. The young larvæ, which began to appear on the fifteenth day, July 14th, were almost white, with nearly black heads.

Acidalia aversata.—A female, taken July 2nd, laid forty-three eggs on the 3rd, in clusters very like bunches of grapes, on a string of an old larva-web, which happened to stretch across the glass cylinder: they were deposited with great neatness, the smaller end touching the web, the larger standing out at an angle of 45°, or thereabouts; the several clusters containing from six to thirteen eggs. Oval, flesh-coloured, not glossy. On the fourth day the signs of fertility appeared in a few red specks on one side, about midway between the two ends. The young larvæ appeared on the twelfth day, July 15th: heads black, and five alternate rings of gray and black.

Corycia temerata.—A female, taken June 30th, laid twenty-three eggs: twenty-one on July 1st and two on the 2nd; all close to the midrib of the leaves of wild cherry, and pressed as much as possible under it. Oval, yellow, glossy. On the fourth day the signs of fertility appeared in a few red specks on the crown, and were followed by others over the whole surface of the egg, which at last assumed an orange-colour, of which colour the young larvæ appeared on the thirteenth day, July 14th.

C. taminata.—A female, taken June 21st, laid one hundred and ninety-one eggs: forty-six on the 23rd, twenty-three on the 24th, twenty-two on the 25th, twenty-six on the 26th, fourteen on the 27th, six on the 28th, seven on the 29th, four on the 30th, fifteen on July 1st, sixteen on the 2nd, eight on the 3rd, and four on the 4th; scattered singly on both surfaces of the leaves of wild cherry. Very nearly circular; flattened on both surfaces; yellowish white, glossy. The young larvæ, which were almost white, began to appear on the ninth day, July 2nd, two days before the last eggs were deposited.

Ligdia adustata.—A female, taken June 17th, laid twenty-nine eggs: twenty-one on the same night, and eight on the 18th; nineteen were attached to a web on the food-plant (Euonymus europæus), two on the muslin cover, four on the edge of the under surface of a leaf, two near the middle of the under surface, one on the edge of the upper surface, and one on the stem of food-plant. Oblong; equally rounded at both ends; dull green, very much resembling the colour of the stem of food-plant; the surface covered with very minute, circular, convex markings; assumed a reddish brown hue on the fourth day. The young larvæ began to appear on the twelfth day, June 30th.

Cidaria corylata.—A female, taken June 21st, laid seventeen eggs: eight on the 22nd, six on the 23rd, and three on the 24th, attached to the edge of the under surface of the leaf. Of a faint greenish tinge; oblong; equally rounded at both ends; not flattened. The young larvæ began to appear on the twelfth day, June 4th.

Halias prasinana.—A female, taken June 18th, laid three hundred and ninety-three eggs: thirty-three on the 18th, one hundred and twenty-one on the 19th, eighty-seven on the 20th, fifty-four on the 21st, forty-five on the 22nd, thirty-two on the 23rd, and twenty-one on the 24th; of these thirty-three were deposited in the collecting-box, two hundred and thirty-six on the glass cylinder, and one hundred and twenty-one on the leaves of oak, mostly on the upper surface. In shape much resembling a limpet-shell, but less convex and circular; ribbed from the circumference towards the centre, which is occupied by a small, smooth convexity, around which the ribs rise; deposited both singly and in clusters of as many as five, when the circumference of one often overlaps that of others; almost always singly when on the leaves. Yellowish white. The signs of fertility appeared on the third day, the centre assuming a brown hue, which gradually darkened, the circumference beyond it becoming colourless and transparent. The young larvæ began to appear on the thirteenth day, July 1st: almost white, head large, the body decreasing from the 2nd segment, and almost ending in a point.

P. H. JENNINGS.

Longfield Rectory, Gravesend,
July 17, 1875.

The Plague of Locusts in America. By EDWARD NEWMAN.

"*The Plague of Locusts in* 1874 (Extract continued).—To illustrate the reality and intensity of the sufferings that we have alluded to, we shall give one extract only out of a large number that might be quoted. The writer of a letter to the 'Prairie Farmer,' dated 'Kearney, Nebraska, November 16th,' thus describes the condition of things in his neighbourhood:—'Your readers have been pretty fully posted as to the ravages of locusts over this entire region, the devastation extending from Central Minnesota to the southern limit of Kansas, the whole country being almost as utterly destroyed, so far as provisions are concerned, as if it had been swept by the scathing flames. I speak more understandingly of my own neighbourhood, and shall endeavour to state facts that may be firmly relied upon, and which can be verified, if necessary, by the testimony of others in my own vicinity. The wheat crop, what there was of it, considering the dry weather, was good; but fully one-half of the settlers had no wheat at all; their sole dependence was corn and potatoes; in many instances the very uncertain product of prairie sod. Thus nearly half of our people were dependent solely upon the two above articles, both of which were almost entirely swept away by drought, bugs and locusts combined. *Every* family nearly, that was able to do so, having friends in Iowa and Missouri have gone there to winter: some may return; others never will. Many proved upon their claims, and have left the country for ever. The number of actual homestead settlers is thus reduced fully one-half in my own neighbourhood, and of that one-half not one family in ten have provisions, fuel, or clothing, to last them through the winter; fully two-thirds have not food enough to last until the 1st of December. I find, from conversation in Kearney with settlers both north and south for a distance of thirty to fifty miles, that the same statement holds true over almost the entire region. Thus, notwithstanding the *cry* of some of our papers that "we are not beggars," more than two-thirds of those now on their homesteads must either beg or starve. In less than thirty days there will be starvation and death, unless these needs are promptly met. There is no corn, no oats, no feed of any kind for stock, except what is shipped in from a distance; there is no fuel except coal, at from 8 to 11 dollars per ton; there is no work, no money; there is no seed-corn, and, in very many instances, no seeds of any kind for another year's planting. On the 13th inst. I met two of my neighbours. One has a family of six to provide for, three of them young children: says he,—"I have just flour enough to last until Saturday night." The other has a family of ten, four of whom are sick, and have been since September; one child, a bright boy of some four years, has lost the entire use of his limbs, and now has to have the care of a helpless babe: this man has flour for ten days, and potatoes that will enable him to get along for a week or two longer. Last winter this family of children were entirely without shoes or stockings, with clothing just sufficient to cover nakedness, and ragged at that. The writer of this article has flour for a week,—fifty pounds,—and pays for it in breaking one acre of prairie, thus giving 3 dollars in work for 1·20 dollar-worth of flour. He does not state this complainingly, being glad to get work to feed his five babies at any price. I merely give these three cases as a sample. While I give but three, there are many others all around me in fully as deplorable a situation. This want extends over the whole area of country,—west, north, and south; and the farther the settlement is from the supplies, the greater the wants and privations of the settlers.'

"*The Plague of Locusts in Manitoba, &c.; specially with reference to Devastations previously to* 1874.—Thus far we have been describing the extent and terrible results of this year's plague of locusts in the Western States of the Union. We have now, unhappily, to record its occurrence in our own new province of Manitoba, which adjoins the state of Minnesota, so frequently referred to above. From the following record of visitations previous to this year, it will be observed that they were, in almost all cases, simultaneous with those in the neighbouring States, that we have described in the earlier part of this paper. For this record we are indebted to the letter of the Winnipeg correspondent of the Toronto 'Globe,' which appeared in that paper on the 5th of August last:—'Grasshoppers first appeared in Red River towards the end of July, 1818, six years after the commencement of the settlement. They covered the settlement belt, but did not utterly destroy the wheat crop, it being nearly ripe at the time. Barley and other crops were swept away. They deposited their eggs and disappeared; and the following spring the crop of young grasshoppers was immense. These departed before depositing their eggs, but devoured all vegetation on their route, thus destroying all the crops of 1819. Great numbers came in during the season of 1819, and deposited their eggs; so that in 1820 the crops were again all destroyed. Thus for three successive years were the crops in this country destroyed by these pests. They then disappeared for thirty-six successive years, the next visitation being in 1857, when they visited the Assiniboine settlement, doing but little injury beyond depositing their eggs. The following season their progeny destroyed all the crops within their reach. In 1864 they again appeared in considerable numbers, but did little injury to the wheat crop. The following year the young grasshoppers partially destroyed the crops, leaving many districts entirely untouched. The largest swarm ever known came in August, 1867, but the crops were so far advanced that season that they did but little injury. Their eggs produced such immense swarms the following spring that they destroyed everything that had been sown throughout the settlement, and famine ensued. In 1869 they again visited the country, but too late to do much harm. The season following, however, they destroyed most of the growing crops. In 1872 immense hordes of these winged pests again visited a part of the country about the beginning of August. The country west of Headingly escaped, and generally the wheat was not much injured, but they played sad havoc with the gardens. Nothing was sown the following spring throughout the infested district, but throughout the western settlements a large crop was grown and saved.' From the same source we have obtained the following particulars respecting the ravages of the locust in different parts of the province:—

'*The South.*—From West Lynn (Pembina) northward, as far as Scratching River, the oats and barley have been entirely destroyed, and the wheat partially.

'*Palestine.*—The latest reports from this settlement confirm the accounts that the settlement is laid waste.

'*Manitoba Lake.*—The shores of this lake are strewn three feet in many places with dead grasshoppers, the wind having driven them into the lake, where they were drowned and cast ashore.

'*The Boyne Settlement.*—They are very thick here, and have completely destroyed the oats and barley, and about half ruined the wheat.

'*Portage la Prairie.*—From Polar Point to the Portage the fields are swarming with grasshoppers, which have devoured the crops. Scarcely anything has escaped.

'*Rat Creek.*—In this neighbourhood it is reported that the crops of Kenneth McKenzie, Hugh Grant, and others, are being destroyed, and that the former had commenced cutting his oats and barley for fodder rather than let the pests take all.

'*Rockwood.*—The crops in this settlement have suffered severely: oats and barley completely destroyed, and wheat badly injured.

'*Woodland.*—Most of the settlers in this neighbourhood are entirely cleaned out.

'*County of Provencher.*—All the crops along the Red River, from Pembina to Stinking River, have been eaten up, excepting, in some instances, a portion of the wheat and potatoes have escaped.

'*Winnipeg.*—The gardens in this city and the oats and barley in the neighbourhood are being destroyed. During the evenings, at the going down of the sun, they seek the board-fences and sides of houses in such numbers that in many cases it is impossible to distinguish the colour of the houses, or the material of which they are built.'

"As yet we do not know whether the locust ravages are wont to extend over the great fertile region to the north-west of Manitoba,—that magnificent agricultural region drained by the Saskatchewan River; we hope, and we are strongly inclined to think, that the plague, if noticeable at all, is there trifling in character and moderate in extent. Should it be otherwise, should that 'fertile belt' be as subject to these visitations as the states to the south of it unhappily are, it must prove a great hindrance to its rapid settlement. If, on the other hand, it possesses an immunity not shared in by the western states, it will certainly draw from them, before many years are over, and as soon as railway facilities are afforded for transportation of goods and produce, a very large portion of those settlers who are now eaten out of house and home. We fully expect to see the tide of immigration, which for a few years past has been setting so strongly towards the plains of Kansas and Nebraska, turned towards our own more highly-favoured, even though more northern regions of Assiniboine and Saskatchewan."*

EDWARD NEWMAN.

(To be continued.)

Entomological Notes, Captures, &c.

A few Remarks on some Collectors.—When I began reading Mr. Lewis's remarks on this subject (Entom. viii. 127) I thought his rhetoric and clever insinuation respecting the eight hundred Colias Hyale referred to myself (by the bye, I fail to see why "defenceless" should be especially applied to that species), as I, in company with three other collectors, did capture about that number a few years ago, and, not having heard of a similar number being taken by others, I presumed he referred to me. Glad was I to find, on continuing, that it was not so; and lest some readers, who have either forgotten or did not read the circumstances under which these Hyale were caught, should be misled by Mr. Lewis's paper, and so connect me with the attempted extermination of the "gentle creature, Sinapis," I crave a few lines space. At p. 179, vol. iv., of the 'Entomologist,' it will be seen that *four* of us were collecting; and as we were more than *three*

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* Rev. C. J. S. Bethune, M.A., in "Report of the Entomological Society of the Province of Ontario, 1874."

weeks getting the number, the "physical fatigue" was therefore not so very great: an average of two hundred and fifty specimens a week is surely not *very* hard work for four enthusiastic collectors! Great pleasure most certainly did come through my success, which enabled me to give some of my friends some very fine series of this insect. I also attempted a little exchanging, but soon found the greatest pleasure was to be obtained in giving them away. As to the man who "took the whole spring-brood" of Sinapis, it is the first I have heard of it. Anyone who could attempt such a mean and selfish action (unless he were a dealer,—it would be pardonable then), should be treated with silent disdain and contempt.—*H. Ramsay Cox; Lyndhurst, June* 14, 1875.

[This little passage-of-arms must end here.—*E. Newman.*]

Sugaring for Moths.—I should like to say a word respecting sugaring. I have practised that pleasing pastime more than a quarter of a century. I have found that a good deal depends on the atmosphere: the weather gloomy, thick, foggy, damp nights, are the times that I have been successful, beginning about sunset in the month of June; and instead of putting the mixture on about the height of my breast I run the brush right down to the ground.—*John Potts.*

Life-history of Acidalia emarginata.—A female, taken during the first week in August, last year, deposited a few eggs, from which the young larvæ appeared on the 13th of that month. They grew very slowly until the time for hybernation came; and although they fed at intervals throughout the winter they increased very little in size. In March of the present year they began to feed more vigorously; and have now, July 13th, become about three-quarters of an inch long, after having lived in the larval state exactly eleven months, and spending most of that long period almost stationary on the dead twigs of the food-plant (Galium mollugo), resting sometimes in a straight position, and sometimes—especially in their very young days—with the back arched. Body tapering anteriorly, ribbed transversely and rough to the touch; the transverse ribs less distinct on the anterior portion of the middle segments. Colour of head and face dark brown. Head notched, and thickly sprinkled with hairs; as are also the 2nd and 3rd segments, on which the hairs point forward. Colour of body various shades of olive-brown. The medio-dorsal line is composed of two slender, darker lines, edging another of a much lighter shade; the darker edging lines are only present from the 5th segment onwards to the 12th; on the 4th, 5th, 6th, 7th, 8th, 9th, 10th, and 11th segments, are two transversely-placed black dots; and on the 5th, 6th, 7th, 8th, and 9th, there is dark V, with its point towards the head; the divisions of these last-named segments are very perceptible in the lateral skinfold. The spiracles are of the darker shade. The ventral space of an almost uniform olive-brown.—[*Rev.*] *P. H. Jennings; Longfield Rectory, Gravesend, July* 13, 1875.

Spilodes palealis.—Yesterday (Friday) I had a fine specimen of S. palealis emerge from pupa. I found several larvæ last September, on the road from Dartford to Darenth Wood, feeding in the umbels of wild carrot, which they draw together with a web. They leave this when they are full fed, descend to the ground, and there form a compact, oval cocoon, somewhat resembling an eggar's cocoon in miniature, but I think rather large for the size of the insect. Some years ago I believe two or three specimens were taken in this locality,—one I know by my friend Mr. Dow; but it is only within the last year or two that the larvæ have been taken there, and then only sparingly, until last year, when they were taken in abundance. This is the first specimen, so far as I know, that has been bred from the larvæ which were taken at Dartford last year; and this fact will remove any doubt which existed as to whether the larvæ which were taken there really were S. palealis or not. It is, as far as I have heard, rather a difficult insect to breed, as it does not change to a pupa until about the middle or end of June, although it makes its cocoon in the autumn; and, like many larvæ which do the same thing, they die off. It is necessary to keep them moist, or they dry up; but, unfortunately, in keeping them moist lies the difficulty, as they are then very liable to go mouldy,—a state of things which has happened to most of mine. I may say that I have kept mine out of doors all the time. I find, on examining the remaining cocoons, that I have another one which contains a pupa, which I hope to find out in the course of a few days.—*C. W. Simmons;* 39, *Market Street, Caledonian Road, N., July* 17, 1875.

Lepidoptera at Rannoch.—I was at Rannoch in the first fortnight of July with (thanks to the kindness of Dr. Buchanan White, whose kind assistance was of the greatest value to me), a fair amount of success. Sugar was very unproductive, and a few Hadena rectilinea, Noctua conflua, and dark Cymatophora duplaris, were all that I got for my trouble in that line. On the hills, however, I got Psodos trepidaria, Larentia cæsiata, Coremia munitata, Larentia salicata, Melanthia ocellata, Cidaria immanata, Scopula alpinalis, and many others. In the Black Wood, Fidonia pinetaria was not out, but Acidalia fumata, Boarmia repandata, and Larentia cæsiata, were common, and there were many Tortrices out as well, which Dr. White worked very successfully; but, as I had a fearful headache on the day we visited the wood, I must plead guilty to having been lazy on that occasion. Near Kinloch, Emmelesia blandiata and Lycæna Artaxerxes were out, and Lycæna Alexis was very conspicuous on the banks. I also saw, near the end of my stay, July 12th, a hybernated specimen of Vanessa Urticæ.—*J. C. Wassermann; Cullercoats.*

Apatura Iris (Entom. viii. 159).—This butterfly we occasionally see in a wood in this neighbourhood. I was away from home last year while the insect was out; but it was observed several times by my father, the late Mr. Thomas Bentall, feeding on dead moles, and he succeeded in capturing one specimen (a male) at this high-flavoured food. I have to-day bred a specimen (a female) from a larva beaten from sallow on the 5th of June, and which became a pupa on the 15th.—*S. R. Bentall; Nightingale Hall, Halstead, Essex.*

Apatura Iris (Entom. viii. 159).—I may say that on July 15, 1857, in the Farnham district, I took nine males from oaks with a hoop-net tied to a long pole, one other male on the ground, and two females flying near the ground. I have reason therefore to say that on that occasion the pole was of much service.—*Frederic Walker.*

Apatura Iris (Entom. viii. 159).—I was interested in reading the note by Mr. Anderson concerning this species. My experience would go to prove that there are times when the insect adopts the same mode of flight as other butterflies. Last July (1874) was dry in the early part, at least here, and the wind rose generally at sunset, so that there was but little dew deposited; and, sure enough, while this dry time lasted A. Iris flew low down, as if searching for the moisture it might otherwise expect to find on the leaves of oak, &c. I captured six, and a friend one, without any difficulty; they all seemed too much engrossed in the search for something to take much notice of our approach.—*W. Jagger; St. Ives, Hunts.*

Argynnis Niobe near Canterbury.—On the 29th of June I had the good fortune to take a fine male of this beautiful insect, and to-day have succeeded in taking a second specimen, which I believe must be a variety, it being without silver spots, but of a dull yellow colour. I believe I saw a third, but cannot speak with certainty, as Aglaia are so like them when on the wing. I have shown this last one alive to a collector here.—*G. Parry; Church Street, St. Paul's, Canterbury, July* 6, 1875.

[It is the variety Eris of Argynnis Niobe.—*E. Newman.*]

Chœrocampa Elpenor, &c., at Sugar.—Last evening, June 22nd, I obtained four specimens of Chœrocampa Elpenor at sugar; three were hovering at one tree, and taken by one sweep of the net. On one tree I counted seventy-three insects, all common species. I do not think I shall over-state it in saying that Agrotis corticea and A. exclamationis came by thousands, and Triphæna pronuba by hundreds. I captured two fresh Xylocampa lithorhiza, which seems to give this insect a wide range, as I took it here in February. Can there be a second brood? The only good thing taken here this season was one specimen of Notodonta Chaonia. I should mention that I laid the sugar on early, and that the Chœrocampa Elpenor were taken before I lighted up; the evening was close, and without a breath of wind.—[*Rev.*] *A. C. Hervey; Butleigh Vicarage, Glastonbury Somerset.*

Anticlea sinuata.—On the 19th of June I had the pleasure of finding in one of my breeding-cages a beautiful female Anticlea sinuata. When I was away from home in East Kent, last August, I found a caterpillar on Galium verum, with which I was not acquainted; but on the appearance of the perfect insect a reference to 'British Moths' connected the one with the other, and told me the caterpillar I had found was that of A. sinuata.—[*Rev.*] *P. H. Jennings.*

Larva of Pterophorus rhododactylus.—On the 26th of May last the Rev. T. W. Daltry, of Madeley, and myself, took the larvæ of Pterophorus rhododactylus very freely in a wood in North Kent. We went in the hope of finding the larvæ of this species, and of Nola albulalis, on the spot we had taken the imagos last July, but were quite baffled, so far as that latter species is concerned. Mr. Daltry soon detected that of P. rhododactylus, feeding just beneath the leaf overlapping the rose-bud, and eating into the bud from the side. Almost as many, too, were found in similar positions at the ends of the young rose-shoots.—*Geo. T. Porritt; Huddersfield, July* 3, 1875.

Capture of Ephippiphora ravulana.—I am pleased in being able to report the capture of E. ravulana, a species that I believe has not been taken since 1868, although diligently searched for. Two years ago Mr. E. G. Meek pointed out to me the spot where he had taken his specimens, and, like a modern entomological sceptic, I had begun to doubt the species, when this year the insect again appeared. I captured my specimen within ten yards of the old locality. Strangely enough I took it on the wing.—*Sydney Webb; Redstone Manor House, Redhill, July* 8, 1875.

[Please say when and where. Date and locality seem to me the very pith and essence of these records.—*E. Newman.*]

Catoptria Aspidiscana and Dicrorampha Tanacetana at Grange.—On Whit-Saturday I went to Grange to look for Catoptria Aspidiscana. The day was a bitter cold one with a very strong wind, with occasional gleams of sunshine, and then it was very hot in sheltered corners. I spent about six hours, although a little rheumatic, hobbling over the rough limestone, and managed to make a great catch, *viz.*, thirty specimens, quite as many as for the previous seven years; the high wind had blown them all together; but I have had to pay the penalty ever since, being unfit to go away. Through the sudden changes and excessive walking I had to give all up and come home; could not move a limb with rheumatism. As soon as I was able to walk out a little I made my way to some gardens last week, and found a small bed of tansy, and most unexpectedly turned up Dicrorampha Tanacetana, a species that I never could get, only some half dozen from my late friend D'Orville. During my forty years' collecting I have had specimens sent to me of D. Herbosana as this species by well-up entomologists, but they are totally distinct. Now I have taken a splendid series of both sexes: the females are very bad to find; they will hardly fly under any influences, not even touch-paper; they will creep up sometimes, only oftener walk about on the ground. Barrett's description of its distinctions is an admirable one, the rich yellow irroration and the stigmal differences being well set out. I may add that I have taken a few out of a clump of Michaelmas daisy. I am inclined to think the larva feeds on this as well as on the tansy. They seem excessively partial and local.—*J. B. Hodgkinson; 15, Spring Bank, Preston, July* 1, 1875.

Catephia alchymista near Colchester (Entom. viii. 164).—In the 'Entomologist' for July I see there is a notice of the capture of Catephia alchymista in Sussex, on June 4th. I have great pleasure in informing you that this fine species has also occurred near Colchester this year, a single specimen having been found at rest on an oak-trunk on June 9th. It was taken by Mr. Tillaney of this town, and is now in my possession. Since the capture of the first British specimen by Dr. Wallace in 1858, in the Isle of Wight, I believe no other capture has been recorded till this year; so that, unless others have been taken recently, there are as yet only three British examples.—*W. H. Harwood; 8, West Stockwell Street, Colchester, July* 22, 1875.

Abundance of Callidium violaceum.—In a summer-house, lately built of pine-slabs, in a garden at Croydon, there have appeared by hundreds specimens of that beautiful beetle Callidium violaceum. They were running over the surface of the pine in all directions, beginning to make their appearance about the second week in June, and continuing about a fortnight. They have now entirely disappeared.—*E. Newman.*

Answers to Correspondents.

S. Bradbury.—Thecla Quercus, or purple hairstreak.—*Edward Newman.*

C. E. Johns.—Name of a Moth.—I think the moth described must be Metrocampa margaritata.—*E. Newman.*

J. S.—Chelifer cancroides.—Can you tell me the name of the small insect, which I found this morning hanging on to the leg of a fly, and looking like a parachute attached to a balloon? And what is the object of the aërial journey?

[The first question is easily answered; the second is a problem more difficult of solution. The insect is Chelifer cancroides. I once found it in vast numbers under the bark of a willow tree on the banks of the New River. They are said to feed on minute Acari, but I am unable to confirm this. The usual situation is suspended to the leg of a fly by means of its extraordinary legs, which remind one of the claws to a scorpion or of a lobster, on a very diminutive scale. When allowed to crawl on a sheet of white paper their claws, or chelæ, are held in a remarkable and rather threatening attitude, forcibly reminding one of the attitude of a scorpion, a resemblance which the general structure of the creature serves to increase, and indeed which induced Dr. Leach to arrange it with the scorpions, and in close proximity with the spiders. Still we have to deal with its strange propensity to settle itself on the legs of flies. It is of course very natural to suppose that these flies, having a decided weakness for settling on the trunks of willows, and that these scorpion-like creatures having a similar weakness for the toes of a fly should fix themselves thereupon; still there is something that requires explanation.—*Edward Newman.*]

Henry Reeks.—*Hylesinus Fraxini.*—I found the enclosed larvæ and perfect beetles feeding just beneath the bark of young ash-trees. Can you kindly give me any information respecting them? Their great abundance must do the trees some harm.

[The beetles are Hylesinus Fraxini. They have long been known as injurious to ash-trees, but more particularly to young ones: as the trees grow older the effect is less marked, and on old trees the injury is scarcely perceptible. Painting the trees with turpentine has been effacacious on a small scale; but it is the more general practice to let the trees outgrow the disorder. I have particularly noticed the partiality shown by the Hylesinus for those young trees which have been previously weakened by the attacks of Zeuzera Æsculi, presenting a parallel case to that of Scolytus destructor and Xyleutes Cossus, the attacks of the moths being almost invariably followed or accompanied by that of the beetles.—*Edward Newman.*]

A. L. S.—*Mangold Wurzel Beetle.*—I adopt the term "beetle" because the little creature is so named by the sender. It is really not a beetle at all, but one of those apparently insignificant creatures which form the subject of Sir John Lubbock's admirable monograph on the 'Collembola and Thysanoura.' In this work it is represented on plate 2 under the name of Smynthurus fuscus, and appears from the synonymy, in which of course I have perfect reliance, to be the "Podura globosa-fusca" of Linnæus. It is not more than a tenth of an inch in length: it has a fat subglobose, body, no neck, a transverse head, and many-jointed antennæ; the basal joint is short, not projecting beyond the head; the second and third are longer, and are followed by a series of fifteen or sixteen *very* short joints, so short as to appear like mere marks on the exterior, and not to be real joints at all; the legs are short, shorter than the antennæ; indeed they appear ridiculously short in proportion to the obese body. Although these funny little creatures are accused by my correspondent of injuring our crops of mangold, yet I am far from being convinced that this is really the case; for it seems difficult to state in what the food of the Smynthuri really consists. They certainly swarm on the young plants of mangold, and on, as well as under, such small stones as may happen to be in the immediate neighbourhood; but their object in thus congregating is by no means obvious. Sir John Lubbock observes that "the majority of the Collembola live on decaying vegetable matter, and they are to be found in great numbers in almost all damp places, skipping occasionally like fleas when disturbed." The object of the skipping propensity, possessed by some of the species, seems to be very doubtful; and it has been well observed by their eminent historian, that "the possession of a powerful saltatory apparatus appears to be a fantastic provision for a species that lives in the chinks and crannies of bark, in the interstices of fungi, or buried among decaying leaves." Concerning the habits of these Smynthuri very little is known. But few life-studies of them have been sketched; but here is one, touched tenderly and with a master's hand:—"It is very amusing to see these little creatures coquetting together. The male, which is much smaller than the female, runs round her, and they butt one another, standing face to face, and moving backwards and forwards like two playful lambs. Then the female pretends to run away, and the male runs after her, with a queer appearance of anger; gets in front, and stands facing her again; then she turns coyly round; but he, quicker and more active, scuttles round too, and seems to whip her with his antennæ; then for a bit they stand face to face, play with their antennæ, and seem to be all in all to one another." ("Monograph," p. 109.) It may seem to some readers that this has but little to do with mangold wurzel and mangold wurzel beetles, but I trust the departure from the strict order of science may be forgiven.—*Edward Newman.*

E. De Brath.—Name of a Beetle.—The beetle is Cryptocephalus sericeus. Very common in yellow composite flowers throughout the summer.—*Edward Newman.*]

S. L. Mosley.—Diptera.—I shall be very glad to name any British specimens of Sarcophaga; of any belonging to the restricted family, Muscidæ; and of Anthomyidæ. There is no complete published list of British Diptera; but Mr. G. H. Verrall is at present engaged in drawing one up.—*R. H. Meade; Bradford, Yorkshire.*

John Sterry, J. D. S., George Mennell, William Ashby, and a number of other Correspondents.—Fireflies.—From various parts of the country I have received accounts of specimens of fireflies captured on the wing, and actually in the act of emitting light. The localities are chiefly—Keston Common, in Kent; Tunbridge Wells; Sandown and Bonchurch, in the Isle of Wight; Fordingbridge, near Salisbury; and Penzance, in Cornwall. A very careful examination and comparison do not reveal any difference in character between these and the males of the ordinary English glow-worm. The prothorax has an indistinct, ochreous mark just within the margin, and without any decided limits beneath; the legs have also pale longitudinal markings, and the terminal joint of the abdomen is yellow, more especially two circular spots, from which the light is said to emanate; the elytra have three longitudinal keels, which are very feebly pronounced; and the wings are smoke-coloured. The specimens examined are from Keston Common and Penzance.—*Edward Newman.*

John Thorpe.—Hair-worm.—I enclose you an animal which we generally take on some rocks where fresh water runs over. We have taken them ten inches long. We should be very glad to know its name and character. If you could give us any information about its habits, &c., we should take it as a great favour.

[The creature is a Filaria, or thread-worm; one of the section of Entozoa, or intestinal worms. I regret to say that their history is very imperfectly known to me; but during the greater portion of their lives they are certainly parasitic: man, quadrupeds, birds, fishes, and insects, are subject to their attacks. I have repeatedly found them protruding from the anus of a common ground-beetle, known to entomologists as Feronia madida: they not unfrequently exceed the beetle three or four times in length; indeed, one of them inhabiting man, and called the guinea-worm (Filaria madinensis), is sometimes three feet in length. This species is found in Africa, and inhabits the legs and feet of men, causing tumours and great suffering: it is extracted by a curious process: one end of the worm is seized with forceps and wound round a stick, which process of winding is continued day after day, until the whole is extracted; of course the patient has to keep quiet during the whole time. If during the operation the worm breaks, a portion remaining in the flesh, the patient dies. It is believed that the Filarias have two modes of propagation: *first*, by division, as when a portion is broken off from the body and becomes an independent animal; and *secondly*, by eggs, which are laid in water, and the young, becoming attached to aquatic animals, are swallowed by birds, and thus find their way to a suitable receptacle for development. It will be observed that I do not state this of my own knowledge, but simply from having read it.—*Edward Newman.*

Henry Reeks.—Fallen Pears.—Mr. Fitch informs me that the pear-maggot, which was the subject of a query by Mr. Reeks in the July number (Entom. viii. 167), is the work of Cecidomyia nigra. Mr. Murray, who has prepared a case for the Bethnal Green Museum, has illustrated with models the mischief-maker at work. He derives his information from Taschenberg, who, in his 'Entomologie fur Gartner,' gives its life-history at p. 364.—*Edward Newman.*

J. Purdue.—Will you please to inform me what part of an English inch is the line, spoken of in measuring beetles, &c.

[In Kirby and Spence's 'Introduction to Entomology' the line is stated to be one-twelfth of an inch; but there is a diversity of practice in this respect, which is extremely puzzling.—*Edward Newman.*]

Extracts from the Proceedings of the Entomological Society of London.

Sir Sidney Smith Saunders, C.M.G., President, in the chair.

MARCH 15, 1875.

Lepismodes inquilinus?—Mr. M'Lachlan remarked that the species of Lepisma exhibited at the last meeting, by Mr. F. H. Ward, did not, on examination, correspond, as he expected, with the description of L. domestica, a common species in the United States, nor did it coincide exactly with the descriptions of any of the other described species, so far as he had been able to compare them.

Lipura corticina.—Prof. Westwood said he had seen British examples of Lipura corticina, *Bourlet*, on apple trees, though the insect was not included as British in Sir John Lubbock's Monograph.

Boisduval's Sphinges.—Mr. Butler read the following review of Boisduval's recently-published volumes of the Suites à Buffon (Lepidoptères), containing the Sphingidæ (including Zygæna, &c.):—"Dr. Boisduval's long-expected work on the Sphingidæ has at length appeared: it is illustrated by eleven excellent coloured plates; and if these had been published without the letterpress, Lepidopterists would have had cause to be grateful to the author; as it is, the work of this veteran entomologist contains so many errors and omissions, that it only obscures the subject which it should have assisted in illuminating. Not only has Dr. Boisduval, in the three hundred and eighty pages devoted to this magnificent group, apparently taken no pains to ascertain what has been done by other workers during the last nineteen years (entirely overlooking even the Supplement to Mr. Walker's Catalogue), but he has returned to the errors of Fabricius and his contemporaries, in his disregard of the law of priority: he calmly renames well-characterized genera and species, quoting the universally-accepted names as synonyms, and gives no reason whatever for so doing; he constantly gives his own MS. names preference to the descriptions of others; he quotes Catalogue lists of undescribed species, thus conveying to the mind of the unwary student the impression that his species have long been characterized; and, in addition to all this, he hopelessly confounds together subfamilies and genera whose larvæ are utterly distinct. In proof of the recent publication of this work (dated 1874) I feel compelled to subjoin an extract from a letter which I recently received from the author, dated 18 Fevrier, 1875:—'Le species des Sphingides, Sesiides et Castniides sera mis au vente Lundi prochain chez M. Roret editeur, Rue Hautefeuille à Paris.'"

Remarks on the genus Terias.—The Rev. R. P. Murray communicated the following remarks:—"The species of Terias forming the Hecabe group have long been a source of perplexity to me, and for some time I have entertained a suspicion that most of them were referable to but one species, T. Hecabe, *Linn.* I think I am now able to bring forward proof that T. Æsiope, *Mén.*, at least, is only a form of Hecabe, and some evidence that the same is probably the case with T. Brende, *Doubl.*, *Hew.*, and T. Sari, *Horsf.* I have frequently received from Mr. Miskin, of Brisbane, specimens of typical T. Hecabe from Rockhampton, and also others of T. Æsiope from Brisbane, these forms being common in their respective localities, while it is by no means common to find them intermixed. So far the only evidence in favour of their forming but one species was afforded by the large number of specimens intermediate in character which came from Rockhampton. But I now learn, by letters received from Mr. Miskin, that he has succeeded in breeding both forms from larvæ found on the same plant (Indigofera, sp.), and that he is now convinced that both forms belong to the same species. The curious distribution of the forms would tend to prove that the difference in markings is not sexual, but dependent on certain conditions as yet unknown to us. Both forms appear to be equally common in N.W. India, from whence I have received them in considerable numbers. I have never received the form T. Æsiope, *Mén.*, from Japan, where typical Hecabe is common, but curiously enough I have seen large numbers of a Terias from Japan, which are, for the most part, indistinguishable from T. Brende, *Doubl.*, *Hew.*, originally described from West Africa, but which graduate insensibly in typical Hecabe, so that I am strongly inclined to believe that this form (Brende) replaces in Japan the Æsiope of Queensland. The evidence is not so strong with regard to T. Sari, *Horsf.*, typical specimens of which seem exceedingly different from T. Hecabe, *L.* I possess, however, three specimens from Malacca, two of which are well-marked T. Sari, while the third, which is much smaller, presents certain peculiarities in the interior outline of the black hind margin of the anterior wings. Below, however, the quadrangular blotch, distinctive of T. Sari, is well-marked. A fourth specimen from the same locality, which must be referred to T. Hecabe, while presenting no trace of the blotch on the under side, exactly agrees in size, and in the markings of the upper side, with the third specimen just described. So that I think it is at least possible that T. Sari will ultimately be found to be but a form of the inconstant T. Hecabe." Prof. Westwood suggested that the case might be analogous to that of certain English species of Pieris, where certain forms, —*e.g.*, P. Napææ, *Esp.*, and P. Sabellicæ, *Steph.*,—now universally recognised as varieties of P. Napi, *L.*, had long been considered as specifically distinct. Prof. Westwood also suggested that attention should be paid to the times of appearance of the various forms, and the period noted during which they remained in the pupa stage. Mr. A. G. Butler remarked that the latter circumstance had an important bearing on the case of Papilio Ajax, *Linn.* He expressed a doubt as to the correctness of the supposition that T. Sari was only a form of T. Hecabe, though he thought that the breeding of the latter and T. Æsiope from the same food-plant was a strong point in favour of their identity.

Death of Mr. Doubleday.—My inestimable friend Henry Doubleday, of Epping, died at his residence on Tuesday, the 29th of June, 1875, sincerely regretted by all who knew him. I intend publishing a short memoir in the September number of the 'Entomologist,' when some account may possibly be given of his vast collections and their future destination.—*Edward Newman.*

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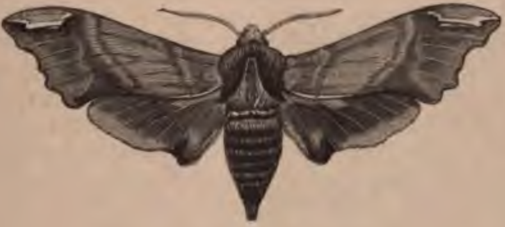


SMERINTHUS TILIÆ (VARIETY).

Variety of Smerinthus Tiliæ.—This beautiful variety chiefly differs from the typical colouring in the entire absence of the median transverse fascia of the fore wings. This fascia is of various shapes; sometimes entire, but as frequently interrupted, and forming two conspicuous blotches, the upper situated about the middle of the costal margin; the lower about the middle of the inner margin. The specimen is in the rich collection of Mr. J. A. Clark, to whose courtesy I am indebted for the loan of the specimen.—*E. Newman.*

Description of the Larva of Cleora glabraria.—On the 29th of June last I found two larvæ on lichens on oak-trunks in the New Forest, which I suspected were Cleora glabraria; and a fine imago of that species, which emerged last Sunday, proved that I was correct. As there is no description of this larva in 'British Moths,' perhaps the following attempt at one may interest some of the readers of the 'Entomologist:'—

With the exception of a lateral fold below the spiracles the skin appears to be smooth and without warts. The ground colour of both the head and the body is whitish green; the former is margined with black; the latter is marked with black spots, consisting of, first, a medio-dorsal series, containing one in the middle of each segment, and a smaller one at each division; secondly, a sub-dorsal series of linear spots on each segment; and lastly, a rather oblique one on the skinfold at the anterior end of each segment: all these black spots are larger on the middle segments. Spiracles inconspicuous.—*H. J. Channon; Woodlands, Lewisham, July* 27, 1875.

Description of the Larva of Emmelesia decolorata.—As the larva of Emmelesia decolorata is not described either in 'British Moths' or in the 'Manual,' you may, perhaps, think it worth while to give your readers the following notes on this insect:—It is a fat, sluggish larva, resembling in outline some of the Eupitheciæ (Pulchellata and Linariata, *e.g.*), and when resting, exposed on the plant, is stretched out with the head rather thrown back. In colour it reminds one of the larva of Ephestia elutella. The head is small, of a shining brown colour, and evidently two lobed. On the 2nd segment there is a horny brown plate, and the anal segment, the claspers of which are wide and spreading, is similarly protected. The medio-dorsal line or band is broad and distinct, but tapering to each extremity, and is of a pale colour. The dorsal area is dull, faint reddish, and has a few shining hairs. On the sides the skin seems to be gathered up into a ridge, the summit of which is the palest part of the larva, and forms a nearly white, irregular, lateral stripe. Below this the reddish colour appears again as an irregular line, abruptly marking off the central area, which is pale, and has several small, but distinct, spots of a pale brown colour on each segment. I have generally found the larva on the stameniferous plant of the white campion, although it sometimes feeds within the seed-capsule. Its presence is generally first noticed by the half-eaten petals, although its food is not confined to these. It will eat either petals, or calyx, or seeds; but it is generally found within the calyx of the unopened flower-bud, devouring the contents. Later on, however, it enters the seed-capsule, and may be found there occasionally; but this insect evidently prefers the stameniferous plant. The larva is full-fed in August, and spins a cocoon underground.—[*Rev.*] *G. A. Smallwood; Barrow-on-Trent, Derby, July* 28, 1875.

Description of the Larva of Hydrœcia Petasitis.—Of nearly uniform thickness throughout, but slightly tapering towards both extremities. The segmental divisions are not clearly marked, but the sectional divisions are very distinct. The head is glabrous, and of a light brown colour. The body creamy white, and with dark brown oval spiracles. The dorsal surface of the 2nd segment is glabrous, and of a pale brown colour; the 5th and following segments have each a transverse dorsal series of four raised wart-like brown dots; the interior pair are generally more prominent and distinct than the outer ones; in younger specimens these warts are scarcely perceptible. There are a number of strong brown bristles scattered over the larva, and particularly about the dorsal warts, sometimes actually emanating from them, but generally in the interstices between them. The under side is creamy white. These larvæ, for which I am indebted to the courtesy of Mr. Robert Kay, of Spring Bank, Bury, bear a very striking resemblance to those of Phragmatœcia Arundinis, probably owing to a similarity of economy, both being internal feeders. Hydrœcia Petasitis feeds in the substantial subterranean stem of the coltsfoot, Petasites vulgaris, in which it makes large excavations. It is usual to speak of this part as *the root*, but it seems to me rather an underground stem, from which leaves and flowers emanate every spring. I presume it is generally known that this species is the Vindelicia of Frey. Mr. Kay accompanies the larvæ with the following interesting particulars.—*Edward Newman.*

Hydrœcia Petasitis.—With us Hydrœcia Petasitis is not near so common as formerly, partially owing to "improvements;" and again, the larva is a desideratum with the anglers for bait. Not having obtained eggs at any time I cannot say how or when they are deposited; but imagine they are placed as low down the stem of the food-plant as possible, so that they may not be destroyed when the plant dies off. With the exception of a few Hydrœcia micacea, and now and then a H. Humuli (feeding in the stems), H. Petasitis appears to be the only Lepidopterous larva which feeds internally on the butter-bur (Tussilago Petasites). Sometimes the presence of the larva may be detected near the bottom of the stems of the food-plant, but in most cases there are no visible signs to show the presence of the insect so busy at work within; and perhaps the best way to find the insect is to pluck up a leaf and examine the base: if sound, it is generally useless examining further. The large plants, in a dry situation, are the most likely. When full grown the larva eats its way through the roots, enters the soil, and changes to a reddish brown chrysalis, without constructing a cocoon of earth,—as stated in Newman's 'British Moths,'—so far as my experience goes, and remains in the pupal state about three or four weeks. I found my first pupa when searching for larvæ, July 21st; and at the present time, August 16th, there are several larvæ still feeding, so that it is possible to find larva, pupa and imago at the same time. Generally it is not advisable to begin digging for the pupæ till the third week in August, as the pupæ are then in a sufficiently advanced state, and may be taken with the least risk of injury. This season, for the first time, I have noticed a few larvæ have been infested with a species of Filaria, or thread-worm, apparently the same I have seen bred in larvæ of Xanthia citrago. The imago may be found by beating and examining the under side of the leaves (withered leaves preferred) in September. Like most internal feeders, H. Petasitis is apt to grease badly.—*R. Kay.*

Entomological Notes, Captures, &c.

Lepidoptera taken at South Shields.—On the 22nd July last I collected here on the coast one specimen of Lithosia quadra; and on the 27th, two of Liparis chrysorrhœa, one of L. auriflua, and one of L. Salicis; the two latter insects being new to this locality. L. chrysorrhœa was taken here two years ago; it has also been taken by my esteemed friend Mr. Wassermann, in his garden, at Cullercoats. Nonagria Elymi has been plentiful on the sand-reed since the end of June, and many of them are in fine condition still on August 10th. On July 25th a worn female of Heliothis peltiger came out of rest-harrow, where I was kneeling to box

N. Elymi: I took it in the hope of obtaining eggs, but in this was disappointed, as she died without depositing eggs. Halonota grandævana, *Zell.*, came out towards the end of June, and is becoming more plentiful than when I first met with it three years ago. Gelechia gracilella: ever since I took the first specimens of this insect, in 1870, I have done my best to make it common; but up to the present season I have not obtained more than a dozen specimens; the locality where I took most of them has been taken for building ground, and the hedge-rows replaced with brick walls. There yet remain two other places where it has occurred singly, and where I hope to obtain specimens for my friends.—*Christopher Eales; Laygate Street, August* 10, 1875.

Captures near Buxton.—On the 9th of August I had an hour on the moors, near the 'Cat and Fiddle,' a country inn about five miles from Buxton. I was not over well prepared for collecting, and had only about forty boxes with me, which I filled with about twenty-four Penthina sauciana, and the rest with Peronea Caledoniana and Pe. Geminana. I never saw more insects. The patch of Vaccinium was literally alive with those and other species. I should not have gone but for meeting with Mr. W. C. Boyd, of Cheshunt; and he called my attention to P. sauciana. I never before met with this insect.—*J. B. Hodgkinson;* 15, *Spring Bank, Preston, August* 6, 1875.

Vanessa Antiopa near Ashford.—It may interest your entomological readers to hear that I caught a good specimen of Vanessa Antiopa in the village-street at Wye, near Ashford, Kent, last Saturday, August 14th.—*S. R. Majendie; Chartham, Canterbury.—From the 'Field.'*

Vanessa Antiopa near Wells, Norfolk.—While driving yesterday in the neighbourhood of Wells, in Norfolk, I saw a fine specimen of Vanessa Antiopa, which my father secured with his hat. It is a fresh and perfect specimen. I believe that several were killed on this coast three years ago.—*Cyril Digby; Buxton.—From the 'Field.'*

Vanessa Antiopa at Chertsey.—If it can interest British entomologists, I beg to inform you that I caught on St. Ann's Hill, Chertsey, Surrey, on the 10th of August, on a windy and cloudy afternoon, a splendid specimen of Vanessa Antiopa.—*Alexander Wailly;* 110, *Clapham Road, S.W., August* 21, 1875.

Erebia Ligea at Margate.—During last summer (in August) a specimen of Erebia Ligea was taken by me in the garden belonging to a house in Margate. I have been assured by competent authority that I am correct in the name of my specimen; so this will add another locality in which to find this rare insect.—*W. J. Mercer; 12, Marine Terrace, Margate, August* 7, 1875.

[I should like to see the specimen, if Mr. Mercer will kindly send or bring it.—*Edward Newman.*]

Colias Edusa on the Wing.—Colias Edusa has been taken at Walton-on-the-Naze this summer, and I saw a specimen at Lyndhurst on June 19th.—*W. H. Harwood.*

Colias Edusa near Long Stratton and Nocton.—Colias Edusa has occurred several times at Long Stratton; and also at Nocton, near Lincoln, in the fen country.—*Henry F. Wilson; Forncett St. Peter's Rectory, Long Stratton, Norfolk.*

Colias Hyale near Long Stratton.—On the 18th of August my brother was so fortunate as to capture a fine specimen of Colias Hyale, a female, on the railway-bank, near Forncett Station. On the 19th I went myself and saw two more, but only succeeded in catching one, a fine female. Would you inform me whether or not Norfolk is further north than Hyale is usually captured?—*Id.*

Colias Hyale and C. Edusa in Norfolk.—On Friday the 20th, and Saturday the 21st of August, my brother and I took seven specimens of Colias Hyale and one of C. Edusa on the railway-bank, near Forncett Station, in Norfolk.—*Id.*

Deilephila Galii near Norwich.—On the evening of the 7th of August I had the satisfaction to take, at Norwood, a beautiful specimen of the bedstraw hawkmoth (Deilephila Galii).—*R. Laddiman; Cossey Terrace, Upper Hellesdon, Norwich.*

Depraved Taste of Lithosia complana Larvæ.—Having a quantity of larvæ of Nudaria mundana and a few of Lithosia complana, both of which were found feeding on lichens growing on stones, for convenience I kept all together in a large breeding-cage. I was surprised to find the pupæ of N. mundana gradually diminishing in number, and at last caught one of the L. complana larvæ in the act of devouring the remains of a pupa; after which it very coolly went to the next to repeat the performance. I send this notice thinking it may perhaps be of interest to others breeding L. complana. —*R. Kay.*

Lithosia quadra at Redcar.—While at Redcar last month (July) I took Lithosia quadra on the 19th, on the sandhills. It seems to me to be out of place there, more especially as there are no trees within two miles.—*George Brook; Fernbrook, Huddersfield, August* 3, 1875.

Variety of Notodonta palpina.—I have recently bred a very dark variety of Notodonta palpina. It is nearly black, and very much unlike ordinary specimens.—*W. H. Harwood.*

Eupithecia Knautiata.—I have now before me three series of this species, bred from baby larvæ, fed separately on the following plants:—No. 1 series fed exclusively upon Scabiosa succisa flowers; No. 2 series fed exclusively upon Scabiosa arvensis; and No. 3 series fed exclusively upon the flowers of Calluna vulgaris. All the food they have had has been gathered from plants growing in my own garden; and the results before me are, first, Nos. 1 and 2 are fine, large, rich, almost purple-brown specimens; and No. 3 only differs in size, not in colour: they are relatively small specimens, but retain all the other characteristics of this species. Seeing it is now the rule of English botanists to ignore the classical generic name, "Knautia," and call two plants (which some people think were well separated) both Scabiosa, so I have used that term above.—*C. S. Gregson; Fletcher Grove, Edge Lane, Liverpool, July* 21, 1875.

Larvæ of Xylophasia scolopacina.—I think it is due to myself to say that I first took the larvæ of Xylophasia scolopacina in June, 1873, at Highgate Wood. I took it there again last year; and this year I showed Mr. Lockyer how and where to take it, both at Hampstead and Highgate.—*C. W. Simmons;* 39, *Market Street, Caledonian Road, N.*

Lithosia quadra and Xylophasia scolopacina in Yorkshire.—I have taken a female specimen of Lithosia quadra at sugar, besides a fair quantity of Xylophasia scolopacina.—*J. Jackson;* 4, *Kendray Yard, Barnsley.*

Tryphæna interjecta and Plusia interrogationis.—On the 22nd of July I took Tryphæna interjecta and Plusia interrogationis at sugared ragwort.—*W. H. Harwood.*

Tryphæna subsequa at Redcar.—On the 27th of July I took at sugar Tryphæna subsequa. I am informed that this is the first recorded capture in Yorkshire.—*W. H. Harwood.*

Dianthœcia capsincola at Sugar.—On visiting my sugared trees on Friday last (August 20th) I was very much surprised to find a fine female of Dianthœcia capsincola. Is it not very unusual to find any of this genus at sugar?—*A. Thurnall; Whittlesford, Cambridgeshire, August* 21, 1875.

Catocala promissa near Ipswich.—I took a solitary Catocala promissa last night, at sugar, in good order. The insect has not been seen in these parts for years. I have also taken Lithosia quadra in two places.—*C. F. Long; Borough Asylum, Ipswich, August* 22, 1875.

Sarrothripa Revayana.—I am now breeding Sarrothripa Revayana, from larvæ beaten from oak in the New Forest last month. This is a very singular insect, and it seems difficult to decide to what family it really belongs. Its little boat-shaped cocoon seems to indicate a close relationship to the genera Nola and Halias; but the Tortrix-like form of the perfect insect, combined with the method of folding its wings, like a Crambus when at rest, makes it quite a puzzle. The larva was new to me, and I did not know whether to think it a Bombyx or a Noctua, as it seemed to have some of the characters of both.—*W. H. Harwood.*

The Plague of Locusts in America. By EDWARD NEWMAN.

(Concluded from p. 179.)

I WILL now turn back, and, still availing myself of Mr. Bethune's admirable summary, endeavour to show that the locust, although so rarely heard of in England as an insect scourge in America, is no novelty in transatlantic regions. The earliest record of the visitation of locusts in America is to be found in Gage's 'West Indies,' a work of which I am unhappily ignorant, except through the extract made by Mr. Bethune. The following refers to the year 1632:—

"The first year of my abiding there it pleased God to send one of the plagues of Egypt to that country, which was of locusts, which I had never seen till then. They were after the manner of our grasshoppers, but somewhat bigger, which did fly about in numbers so thick and infinite that they did truly cover the face of the sun, and hinder the shining forth vegetation of Mexico and Yucatan, and as having produced famine and suffering among the people, especially in California. The Jesuit, Father Michael del Barco, who lived as a missionary in that country for thirty years, relates that from the arrival of the Jesuits, in 1697 to the year 1722, the inhabitants were free from the plague; but in the latter year the sufferings of the people were awful. In 1746 and the three years following locusts swarmed without intermission, and after this were absent until 1753 and 1754; and finally, before the expulsion of the Jesuits in 1765; and the plague continued during the two following years. Clavigero, in his 'History of California,' gives a very interesting account of these several invasions, and describes the appearance and natural history of the insect with great minuteness:—

"The birth of these new grasshoppers has no particular time, but is dependent upon the early or late appearance of the rains, but they generally hatch during the latter part of September or early in October. . . . . . . Their life, from birth to death, lasts ten months, during which they cast their coats twice, and change their colours five times. When the wings have become of sufficient strength and the body at its maturity, they then begin to ascend into the air and fly like birds, and commence their ravages in every direction, desolating the fields of every green thing. Their numbers become so extraordinary that they soon form clouds in the atmosphere, of which the rays of the sun cast a shadow as they fly. They unite in masses of ten to twelve thousand, always following their conductors, and flying in a direct line without falling behind, for they consume every growing thing before them. To whatever height their guides conduct them to obtain a sight of their food, they follow; and as soon as growing crops or any verdure is sighted, instantly the swarm will alight, and speedily devour and devastate the fields around to that extent, and with that promptitude, that when they are seen by a new swarm of their fellows there is not anything more left to injure or consume. This lamentable insect-plague is bad enough in old and cultivated countries, but in the miserable peninsula of California, where they eat up the crops, green trees, fruits, and pastures, they cause great mortality in the domestic animals of the missions, and, with the effect of their ravages on the cereals and other garden productions, cause great famines and sickness among the inhabitants and neophytes of the establishments. At one time immense multitudes of these voracious insects died, infecting the air dreadfully with the stench of their corruption and decay."

Subsequent invasions bear date 1838, 1846, and 1855. In the latter year they extended themselves over a larger surface than had ever before been noticed. They covered the territories of Washington and Oregon, and "every valley of the state of California, ranging from the Pacific Ocean to the eastern base of the Sierra Nevada; covering the entire territories of Utah and New Mexico; the immense grassy prairies lying on the eastern slopes of the Rocky Mountains; the dry mountain-valleys of the republic of Mexico, and the countries of Lower California and Central America; and also those portions of Texas which resemble, in physical characteristics, Utah and California." The records prove that the locusts extended themselves in one year "over a surface comprised within thirty-eight degrees of latitude, and, in the broadest part, eighteen degrees of longitude." The details of this insect-invasion was frightful in the extreme: before them was a productive paradise,—"orchards, gardens, vineyards, fields of young grain, crops of vegetables,—converted in a single day into a withered, blackened desert." That summer was the hottest that had been known for ten years. During the two following years the invasion was confined to the east of the Rocky Mountains: in Minnesota, Nebraska, and Kansas, the locusts were especially destructive. The following passage is cited by Mr. Bethune from the 'Practical Entomologist,' vol. ii. p. 3:—

"'The last day of August, near the middle of the afternoon, quite a number of grasshoppers were seen alighting, and that number rapidly increased till a little before sunset. The next morning they appeared much thicker, but were only so from having crawled more into the open air to sun themselves. About nine o'clock they began to come thicker and faster from a northerly direction, swarming in the air by myriads, and making a roar like suppressed distant thunder. By looking up to the sun they could be seen as high as the eye could discover an object so small, in appearance like a heavy snow-storm: each grasshopper very much like a very large flake, save that it passed by instead of falling. The number was beyond imagination: the air was literally full of them, and continued so till late in the afternoon; countless millions passed on, leaving other countless millions covering the earth and devouring the vegetation.' Another writer from Kansas states that—'Yesterday, September 10th, the locusts made their appearance here, and are devouring everything green. They almost darken the sun in their flight. I put in sixty-five acres of wheat in the last week of August, which looked fine, but it has nearly all disappeared; by to-morrow night there will not be a spear left. Early-sown wheat will be totally destroyed.' From the description given by another writer in Kansas, we may quote the following graphic account:—'There is something weird and unearthly in their appearance, as in vast hosts they scale walls, housetops, and fences, clambering over each other with a creaking, clashing noise. Sometimes they march in even, regular lines, like hosts of pigmy cavalry, but generally they rush over the ground in confused swarms. At times they rise high in the air, and circle round like gnats in the sunshine. At such times I think they are caught by currents of our prevailing westerly winds, and are thus distributed over vast tracts of country.' The foregoing extracts will give our readers some little idea of the mode of appearance and the destructive powers of the locusts in the west. We might fill pages,—a volume, indeed, with similar accounts."

The following year, and again in 1868, they appeared to be much less destructive in Central Iowa and North Western Missouri, Nebraska, Kansas, Texas, and Utah, but did not cross the Mother of Waters, as the great Mississippi has been called. Whether this great river formed a natural barrier to their advance, or whether the eastern limit has been attained, it is impossible to say; but it is certain that hitherto the eastern states have escaped this mighty scourge.

In Mr. Riley's "Seventh Annual Report on Noxious and other Insects Inhabiting the State of Missouri," published during the present year, still further details are given, accompanied by maps, showing the exact limits of the devastation. I cannot afford more space to that part of the subject, but will conclude with a summary of the food-plants, which shows that it is almost omnivorous:—

"Scarcely anything comes amiss to the ravenous hosts when famished. They will feed upon the dry bark of trees or the dry lint of seasoned fence-planks, and upon dry leaves, paper, cotton and woollen fabrics. They have been seen literally covering the backs of sheep, eating the wool; and whenever one of their own kind is weak or disabled, from cause whatsoever, they go for him or her with cannibalistic ferocity, and soon finish the struggling and kicking unfortunate. They do not refuse even dead animals, but have been seen feasting on dead bats and birds. Few things, therefore, come amiss to them; yet where food is abundant they are fastidious, and much prefer acid, bitter or peppery, food, to that which is sweet. The following *resumé* of my notes and observations may prove interesting:—'Vegetables and cereals are their main-stay; turnips, rutabagas, carrots, cabbage, kohlrabi, and radishes, are all devoured with avidity; beets and potatoes with less relish, though frequently nothing but a few stalk-stubs of the latter are left, and sometimes the tubers in the ground do not escape; onions they are very partial to, seldom leaving anything but the outer rind; of leguminous plants the pods are preferred to the leaves, which are often passed by; cucurbitaceous plants also suffer most in the fruit; in the matter of tobacco their tastes are cultivated, and they seem to relish an old quid or an old cigar more than the green leaf; tomatoes and sweet potatoes are not touched, so long as other food is to mouth. Of cereals, corn is their favourite; if young and tender, everything is devoured to the ground; if older and dryer, the stalks are mostly left; the silk is, however, the first part to go. All other cereals are to their taste, except sorghum and broomcorn, which are often left untouched. They are fond of buckwheat and flax, but seldom touch castor-beans. Next to vegetables and cereals they relish the leaves of fruit-trees: they strip apple and sweet cherry-trees, leaving nothing but the fruit hanging on the bare twigs. The leaves of the peach are generally left untouched, but the flesh of the unripe fruit is eaten to the stone. Pear-trees, as Mr. Gale informs me, suffered less than any other kind of orchard-tree at the Experimental Farm at Manhattan, Kansas. The tender bark of twig and branch and trunk of all these trees is gnawed and girdled; and these girdled trees present a sad picture as one passes through the ravaged country during the subsequent winter. Sour cherry, apricot, and plum-trees, are less affected by them, while ripe fruit is seldom touched. Of berries, strawberries and blackberries are devoured, where raspberries are frequently unmolested. Flowering shrubs very generally suffer; and they are particularly fond of rose and lilac. Of herbaceous plants, Helianthus, Amaranthus, and Xanthium, are eaten with especial avidity. Grape-vines suffer more from the girdling of the fruit-stems than from defoliation. Forest and shade-trees suffer in different degrees, and some, when young, are not unfrequently killed outright. Last year, honey locust, red cedar, box elder, Osage orange, elm and oak, were either untouched or but little injured, while the following trees were preferred in the order of their naming: ash, willow, cottonwood, balm of Gilead, silver-leaved and Lombardy poplars, black ash, black locust, black walnut, hickory, Ailanthus, maple, Sumach, and evergreens. In every case they show a marked preference for plants that are unhealthy or withered.'"

English philanthropists, who have taken such laudable pains to discover outlets for their charity in Africa, would do well to direct their attention to the naturally fruitful, but now desolate, regions westward of the Mississippi: the plethora of English wealth might here find a safety-valve among a people who are really and positively our own kith and kindred. Attracted by reports, to what was represented a western paradise, thousands of families have migrated from their homes in England to find a desolate, inhospitable waste, rendered so by the ravages of these insatiable destroyers. It may be asked whether the Americans themselves are doing their best to meet the emergency. And the answer is certainly in the affirmative. Men of science have exerted themselves to the utmost in diffusing a knowledge of the natural history of the insect, and in endeavouring to find means of exterminating or, at any rate, checking the increase of the enemy; while the benevolent have sought, by every means in their power, to repair the losses, and thus mitigate the sufferings.

A crumb of comfort remains to the afflicted; although some differences of opinion prevail on the subject, a general opinion prevails that the locust has reached its eastern limit information regarding the larva; none of the natives knew it, but last monsoon I obtained it, and during June and July many were collected: they fed upon Aristolochia indica, and apparently upon it only. The larvæ were very splendid, of a rich velvety black, with a lateral band, and a saddle of white and red, very roughly tubercled, and the tubercles tipped with red. I cannot from memory attempt a closer description. A plate in 'Wood's Natural History' of the imago and larva of a species there given as Ornithoptera Amphrisius corresponds very closely with this Cochin species. But there seems some doubt about its identity. On July 19th, 1874, I obtained a large quantity both of larvæ and pupæ: the larvæ I fed upon Aristolochia, and many changed to pupæ. From these many emerged before I left India (August 13th), and others on board ship, from the pupæ I took with me. They appear to remain about three weeks in pupa. The pupa possesses the power of making a curious noise, like 'pha, pha,' and makes it very loudly when touched; the noise is accompanied (perhaps produced) by a sharp contraction of the abdominal segments. I thought at first it was merely produced by the rubbing of one ring of the pupa-case against the next, but the sound did not resemble a mere frictional sound; it was more like the sound of the rush of air through small holes,—'pha, pha!' I tried to produce it with a dead chrysalis, but failed; and the pupa sometimes contracted on being touched without making the noise, and appeared unable to make the noise until some time was given to allow them to recover their vigour. A curious incident connected with this insect came under my notice some years ago. In cleaning out the body of a female I turned out a mass of apparently mature eggs, but they all proved unfertile; soon after, in operating upon another female, a slight pressure upon the body drove an egg out from the oviduct, and a repeated pressure extruded a second; the rest, twenty or thirty, would not come, and were taken out in emptying the body. The two which had been pressed through the oviduct hatched, and all the others shrivelled. I mention this as it seems a sort of confirmation of Von Siebold's observation respecting bees, that the fertilization of the egg takes place on its passage through the oviduct. The two larvæ lived two or three days, refusing every leaf I offered them. I did not then know Aristolochia to prevent the establishment of the insect in countries where the moisture of the atmosphere would probably be fatal to it. Mr. Stevens remarked that on different occasions he had received the insect in great numbers in bottles from Orizaba.

MAY 3, 1875.

Stylops taken in Andrena atriceps.—The President exhibited specimens of Stylops taken by himself, in the pupa state, in Andrena atriceps, at Hampstead Heath, on the 6th, 9th and 17th of April last. Mr. F. Enoch, who had been there on the 6th, at an earlier hour (between nine and ten o'clock), had been still more successful, having captured as many as seventeen males, one of which, however, was taken after 2 P.M. The President drew attention to the remarkable difference observable in the cephalothorax of the females in these specimens, as compared with those met with in Andrena convexiuscula, and remarked on the importance of not confounding the species obtained from different Andrenæ; Stylops Spencii having been derived by Mr. Pickering from A. atriceps, and figured by Professor Westwood in the first volume of the 'Transactions' of this Society, while those obtained by Mr. Thwaites from A. convexiuscula had been associated with his name in a monograph of the family by the President in the volume for 1874, under the name of Stylops Thwaitesei.

Insects of Kerguelen's Island.—Mr. M'Lachlan read an extract from a Report made to the Royal Society on the Natural History of Kerguelen's Island, by the Rev. A. E. Eaton, who was attached, as naturalist, to the Transit of Venus Expedition to the island. Nearly all the insects were remarkable for being either apterous or with greatly abbreviated wings. There were two Lepidoptera, one (only a larva) probably belonging to the Noctuina, the other to the Tineina. Of the Diptera, one species had neither wings nor halteres; another lived habitually on rocks covered by the tide at high-water, and its larva fed upon a species of seaweed. All the larger Coleoptera seemed to have their elytra soldered together. Mr. M'Lachlan said that the theory as to the apterous condition of the insects was, that the general high winds prevailing in those regions rendered the development of wings useless; and Mr. Jenner Weir remarked that the apterous condition was correlated with the fact that plants under similar circumstances were apetalous and self-fertilising; and hence it was supposed that the existence of winged insects was unnecessary.

Chekanops under the Elytra of a Passalus.—Mr. C. O. Waterhouse exhibited a Chekanops, of which he had discovered two specimens under the elytra of Passalus punctiger, from Rio Janeiro, thus confirming the statement that these insects attach themselves to the bodies of other insects after the manner of Acari.

A New Neuropteron from Swan River.—Mr. C. O. Waterhouse also exhibited a drawing of a Neuropterous insect of the family Ascalaphidæ, from Swan River, presenting the peculiarity of having a large bifid hump on the basal segment of the abdomen dorsally, each division of the hump bearing a crest of hairs. He believed it to be the male of Suphalasca magna, *M'Lachlan.*

Collection of Neuroptera from Yokohama.—Mr. Wormald exhibited a collection of Neuroptera, &c., from the neighbourhood of Yokohama, received from Mr. H. Pryer. It included several interesting species of Panorpidæ, including a new genus of that family, according to Mr. M'Lachlan; fine species of Osmylidæ, &c. Amongst the Trichoptera was a remarkable species of the genus Perissoneura, black, with a large white spot in each wing, deceptively resembling a butterfly, especially an Ithomia.

JUNE 7, 1875.

Zygæna Meliloti and Z. Trifolii.—Mr. Briggs exhibited bred specimens of Zygæna Meliloti, accompanying them with the following remarks:—"In 1872 and 1873 I reared young larvæ of Z. Meliloti from the New Forest, up to and through hybernation, but they died in the following springs; and these larvæ, from the minuteness of the markings on the ground colour, showed a great distinction from the young larvæ of Z. Trifolii of the same age. Last year (1874) I found small specimens of Z. Trifolii in company with Z. Meliloti. I therefore took especial care that the eggs I reared were from four typical pairs of (the New Forest) Z. Meliloti, found *in copulâ;* the eggs were (in all four cases) larger than the eggs of Z. Trifolii—a peculiarity I had remarked in previous years.

Several of the moths I found difficult to refer with any degree of certainty to either(?) species. In the autumn many of the young larvæ had developed markings like those of Z. Trifolii. This spring (having failed in my two previous attempts) I put the Z. Meliloti, of which about thirty out of three hundred survived the winter, into a greenhouse, and in the result got nine pupæ; the major portion of the twenty-one others fed and grew with their companions for a while, and then hybernated again. Of the nine pupæ six have now hatched, and produced full-coloured specimens of the small Z. Trifolii that I found in company with Z. Meliloti last year. The following questions suggest themselves:—(1) Is the Z. Meliloti of the New Forest a separate species or a dwarfed form of Z. Trifolii? (2) If a dwarfed form, did the additional greenhouse heat aid in developing it? (3) If a separate species, can the specimens I bred from have paired with Z. Trifolii previously? I may add that I have compared M. Boisduval's description of the continental Z. Meliloti with the New Forest insect, and they do not agree in several particulars; and I have inspected the British Museum specimens of continental Z. Meliloti, and they also differ from the New Forest insect, especially in the form of the wings. The fact of the hybernation of the larva for a second year seems common. I have found it with Z. Trifolii and Z. Meliloti during the last three years, and it has been recorded of Z. Loniceræ. Out of one hundred larvæ of Z. Trifolii that survived last winter I obtained twenty-five pupæ (most of which are out); about twenty died, and the rest resumed hybernation, in the first week in June, in a greenhouse, the average daily temperature of which is 75°, and are now hybernating and apparently healthy." Mr. M'Lachlan remarked that the insects of the genus hybridized very freely, and alluded to the possibility of their pairing more than once. Mr. W. A. Lewis had noticed that Z. Meliloti was by far the commonest insect in the part of the New Forest which forms its head-quarters, and that, as it appeared to have been only discovered there of late years, it might be a stunted form which had been developed recently. Mr. Weir said that he had taken the insect twenty years ago in Tilgate Forest.

Insects of Kerguelen's Island.—The Rev. A. E. Eaton exhibited the insects recently taken by him in Kerguelen's Island. There were about a dozen belonging to the Coleoptera, Lepidoptera, and Diptera, besides some specimens of bird-lice and fleas.

Sound produced by Halias prasinana.—Mr. Briggs exhibited a specimen of Halias prasinana, which, when taken, was heard to squeak very distinctly, and at the same time a slender filament issuing from beneath the abdomen was observed to be in rapid motion, and two small spiracles close to the filament were distinctly dilated.

Living Larva in Andrena Trimmerana.—The President called attention to a living larva which he had that morning extracted from the body of a stylopized female of Andrena Trimmerana, taken at Reigate on the 4th of June,—this larva having a long attenuated telescopic process at the anterior extremity, and two piceous reniform appendages behind, like that of Conops, which he had frequently reared from Pompilus, Sphex, and Odynerus, as described by him in the 'Transactions' (vol. iv., ser. 2, 1858, pl. 28). These larvæ had also been met with in Bombus by Latreille, Dufour, and others, as well as in Osmia, but not in Andrena, which moreover had been doubly victimized in the present instance, having the greater portion of the abdomen preoccupied by another invader, and thriving in spite of this and of the Conops larva subsequently lodged at the base.

Podura found on Snow.—The Secretary exhibited some specimens of a minute Podura, forwarded to him by the Secretary of the Royal Microscopical Society, having been found on the snow of the Sierra Nevada, in California.

Flea attached to the Neck of a Fowl.—Mr. F. H. Ward exhibited some microscopic slides showing specimens of a flea attached to the skin of the neck of a fowl, and which remained there after the death of the fowl.

JULY 5, 1875.

Death of Mr. Doubleday.—The President announced the decease of Mr. Henry Doubleday, one of the Original Members of the Society; and Mr. Stainton made some remarks on his entomological labours, and on the great service he had done for Entomology in correcting the nomenclature of the British Lepidoptera.

Ornithoptera from Cochin.—Mr. Dunning remarked that the Ornithoptera bred by Mr. Sealy from larvæ taken at Cochin, South India, and exhibited by him at a recent meeting, had been identified as O. Minos.

Curculio attacked by a Fungus.—Mr. Bond exhibited two specimens of a Curculio, sent by Mr. Griffin from Nova Fribourgo, Brazil, which were attached to the same twig, and were both attacked by a fungus. Mr. Janson said that they belonged to the genus Hylopus, and were well known to be subject to such attacks.

Osmia nesting in a Lock.—The President exhibited a lock, taken from a gate at Twickenham, entirely filled with the cells of a species of Osmia, which Mr. Smith said was most probably O. bicornis, of which he had known several instances in locks. The larvæ were still alive and healthy.

Parasitic Coleoptera, &c.—The President also exhibited an example of the minute Hylechthrus Rubi, one of the Stylopidæ, parasitic upon Prosopis rubicola, recently obtained from briars imported from Epirus, and remarked upon a method of expanding the wings of Stylopidæ. In repose these wings were rolled up in an elongate form; but he found that by pressing them gently forward from below they suddenly became erect, and then easily retained an expanded position. He further exhibited males and females of Spilomena troglodytes (one of the Crabronidæ) reared from bramble-stems found at Shere, in Surrey; also a series of Halictus nitidiusculus, stylopized, and recommended entomologists going to the south coast in August to search for stylopized Halicti, especially on thistles. Finally, he remarked on the parasites of Osmia and Anthidium; and exhibited two specimens of the Coleopterous genus Zonitis (Z. mutica and Z. bifasciata) reared from the cells of Osmia tridentata, and a third (Z. præusta) from those of Anthidium contractum, which latter had also produced two species of Chalcididæ (Leucospis dorsigera and Eurytoma rubicola). He enumerated eleven species of Insect as attacking the same Osmia in various stages, of which he had himself reared six, including the two Zonites aforesaid, the other four being Cryptus bimaculatus, Melitobia Audouini, Halticella Osmicida, and Chrysis indigotea; some of which had been recorded by Dufour and Perris, together with Stelis minuta and two species of Diptera (Senometopia spinipennis and Conops flavipes); two other Crypti (C. confutor and C. signatorius) being cited by Dr. Giraud. The Zonitis devoured the egg and pollen-paste whereon the Stelis also subsisted; the Chrysis, Crypti and Senometopia fed upon the soft larvæ externally; Halticella was reared within the more solid adult larvæ, whose tegument, desiccated and black (as in specimens exhibited), served for the hybernation of the parasite; the Melitobia destroyed the nymph in its soft state by external attack, and the Conops deposited its egg in the body of the bee itself after maturity. Specimens of this Osmia alive, and of the briars from which they were produced, were also exhibited.

Chrysomela cerealis.—Mr. Champion exhibited a series of recently-captured individuals of Chrysomela cerealis from Snowdon, its only known British locality. Mr. M'Lachlan stated that he had recently seen this species in the Department of the Saône et Loire, in France, in great numbers, each ear of wheat having several of the beetles upon it, and remarked on the singular nature of its sole habitat in Britain.

Trap-door Spiders in the Bark of a Tree.—The Secretary exhibited nests of a trap-door spider containing living inmates, sent from Uitenhage, near Port Elizabeth, by Mr. Henry W. Bidwell, a member of the Legislative Assembly of the Cape of Good Hope. The nests were not (as is usual) in the earth, but in cavities in the bark of trees, and the "trap-door" appeared to be formed of a portion of the bark, thus rendering it most difficult to detect the nests when in a closed condition. The Secretary was also informed that similar nests were constructed in door-posts and other places.

American Locusts and Army Worm.—Mr. Riley, State Entomologist of Missouri, exhibited sundry of the insect-pests that do so much damage in the United States, including the army worm (Leucania unipuncta) and the Rocky Mountain locust (Caloptenus spretus), and entered at some length into the habits of the latter insect, and the vast amount of destitution caused by it, stating that in a short period it devoured almost every living plant, leaving nothing but the leaves of the forest trees, and converting a fruitful country into an absolute desert. From a knowledge of the habits of the insect, and believing in its inability to exist in a moist climate, he had predicted that its ravages would not extend beyond a certain line, and he had seen these predictions fulfilled almost to the letter. Having noticed that hogs and poultry grew excessively fat from devouring the locusts, and considering that the use of them as food for man would tend to relieve some of the distress occasioned in the devastated districts, he had, shortly before leaving St. Louis, organized a banquet, at which locusts, prepared in several ways (especially in the form of soup), were served up, and they were pronounced to be excellent. He distributed a number of baked locusts among the members present, but did not recommend them for food in that state, as the chitinous external tegument and the spines required to be removed before they were fit for digestion. Mr. Riley also stated that he was very desirous of taking a supply of the cocoons of Microgaster glomeratus to America, to lessen the ravages of the larvæ of the genus Pieris on that continent; and he would be greatly obliged to any entomologist who could assist him in obtaining them.

[Most heartily do I second Mr. Riley's request. No one has done so much for Economic Entomology in the United States as Mr. Riley; and I hope entomologists in this country will promote his patriotic views as far as is in their power, since we are certain whatever suggestion is thrown out by so thoroughly practical a naturalist is deserving of the most earnest consideration of his fellow-labourers in every country. With regard to the beneficial effect of importation of Microgaster into the United States, I must decline expressing an opinion. I can only say, try it.—*Edward Newman.*]

Removal of the Society.—The President stated that this was the last meeting that would be held at Burlington House; and that due notice would be given to the members when the arrangements at the new rooms of the Society, at 11, Chandos Street, Cavendish Square, were completed; the library having been already removed to that place. Mr. Dunning proposed, and Mr. M'Lachlan seconded, a cordial vote of thanks to the Linnean Society for the permission to hold the meetings at their rooms, so long enjoyed by the Entomological Society. This was carried by acclamation.

Lychnis dioica, deposited singly: yellow, gradually assuming a darker shade till they became of an orange-colour; oblong, glossy, very slightly flattened on both surfaces. The young larvæ, which were yellow, with a black head and a black corneous plate on the 2nd segment, began to appear on the seventh day, June 26th.

Melanippe procellata.—A female, taken July 3rd, laid thirty-eight eggs: twenty-three on the 4th, eight on the 5th, and seven on the 6th. The larger number were deposited on the upper edge of the leaves of the food-plant, traveller's joy (Clematis vitalba), some on the under edge, and one on the stem: almost white, opaque, oblong, slightly depressed on the crown, not glossy.

Anticlea rubidata.—A female, taken July 3rd, laid twenty-eight eggs: twenty-two were deposited on the tips of the leaves of the food-plant (Galium mollugo), for the most part singly, sometimes two on one tip, and in one instance six, and six on the muslin cover: oblong, equally rounded at each end; nearly white, glossy, having very much the appearance of pearls attached to the tips of the leaves. The young larvæ began to appear on the tenth day, July 13th.

Scotosia undulata.—A female, taken July 9th, laid one hundred and seventy-one eggs: thirty-one were deposited on the 11th, eleven on the 12th, thirteen on the 13th, twenty-four on the 14th, five on the 15th, five on the 16th, two on the 17th, ten on the 18th, fifty on the 19th, one on the 20th, eight on the 21st, eleven on the 26th: one hundred and eighteen were on the upper side of the leaves, the goat-sallow (Salix capræa), and fifty-three on the under side, all deposited singly: oblong, slightly depressed on the crown; white, slightly glossy. The young larvæ began to appear on the twelfth day, July 23rd.

P. H. Jennings.

Longfield Rectory, Gravesend,
August 18, 1875.

Entomological Notes, Captures, &c.

Captures in Kent.—I had again the pleasure of taking Nola albulalis in the north of Kent during the middle of July last, although I secured very few in comparison with the entomologizing, I met with two men who had just taken a good specimen of Vanessa Antiopa. It was pinned sideways in a pasteboard-box, along with a lot of Atalanta, Io, and Gonepteryx Rhamni, which swarm there just now. I secured it for my cabinet.—*John Harrison; Barnsley.*

Vanessa Antiopa in Norfolk.—A specimen of Vanessa Antiopa was taken here on Friday, August 20th, and is added to a private collection in the neighbouring county of Suffolk. It measures three and one-thirteenth inches across the wings.—*John Tudor Frere; Roydon Hall, Diss, August* 22, 1875. [*From the 'Field.'*]

Vanessa Antiopa in Ireland.—I am happy to tell you that you may add Vanessa Antiopa to the list of Irish Lepidoptera, a specimen in very fine condition having come into my possession, taken by a nursery-maid on a road in the neighbourhood of Belfast.—*John Bristow; Chichester Park, Belfast, September* 11, 1875.

Vanessa Antiopa and Colias Edusa.—My friend Mr. Hill saw a fine specimen of Vanessa Antiopa near Berkeley Road Station, on August 5th, but did not succeed in capturing it. I have been taking Colias Edusa freely on a railway-bank near here, and also in a clover-field near Chepstow, but found the females very scarce; the proportion being twenty males to one female. Colias Hyale I have not seen.—*J. Preston; Fishponds, near Bristol, September* 20, 1875.

Papilio Machaon, Gonepteryx Rhamni, Vanessa Io, and V. Atalanta.—In the Norfolk fens the larvæ and pupæ of Papilio Machaon have been scarce this season. May not this be attributed to the heavy rains at the season when the larvæ were feeding? I find Gonepteryx Rhamni and Vanessa Io entirely absent from localities where I have never failed to get quantities in former years. Vanessa Atalanta, on the other hand, has been unusually abundant.—*R. Laddiman; Norwich.*

Colias Edusa near Hendon and Hampstead.—I and my brother have within the last fortnight captured three very good specimens of Colias Edusa; two near Hendon, and one near Hampstead Heath.—*J. E. Sharp; September* 6, 1875.

Colias Edusa near Norwich.—On the 29th of August I saw, at South Walsham, a solitary specimen of Colias Edusa on the wing; on the 30th I also observed another near the town. I wonder whether the experience of other collectors is the same as his, as to the scarcity of the female of C. Edusa; but out of quite a large number of males he only succeeded in taking one female.—*Joseph Anderson, jun.; Alresford, Hants.*

Lycæna Arion near Kingsbridge.—The locality in this neighbourhood for this handsome insect was first discovered on the 30th of June, 1856, by Mr. H. Young and myself, at which time, and for many years subseqently, it was to be found in very large numbers; as many as three or four hundred specimens of a morning might be seen sporting about, alighting on the flowers of the wild thyme, and apparently sucking the nectar therefrom. If you give chase for the purpose of catching, it is necessary to be very quick, as they have a peculiar habit of darting into the thick furze, and creeping to its very centre; and all your beating the bush fails to again get them on the wing. Although their locality spreads over many miles of slopes thickly covered with furze, interspersed with wild thyme, facing the sea, I fear there is a great probability of their becoming almost exterminated, for at the present time their numbers are greatly diminished, chiefly attributable to the practice of the occupiers of the land annually burning patches of the furze for the purpose of destroying rabbits, and also converting it into feeding-ground for sheep and cattle. It seems a pity that so handsome an insect before long should be lost to the British fauna, at least in this district.—*H. Nicholls; Roseland, Kingsbridge, South Devon, September* 6, 1875.

Sphinx Convolvuli at Darlington.—We have taken nineteen Sphinx Convolvuli, flying over honeysuckle in our garden, since the 12th of August. We also missed five others.—*John Law; Elton Parade, Darlington, September* 7, 1875.

Sphinx Convolvuli in the North of Ireland.—I caught a fair specimen of Sphinx Convolvuli in the village of Glenarm on Thursday, September 9th, the first specimen I have seen in this locality.—*T. Brunton; Glenarm Castle, Larne, N. Ireland.*

Sphinx Convolvuli at Bristol.—A damaged specimen of Sphinx Convolvuli was brought to me this evening. It was captured last Saturday. It flew into an open window in Clifton Park; and, as is usual in such cases, was placed under a tumbler, and allowed to beat itself almost to pieces. It is a remarkably large specimen.—*W. K. Mann; Granby House, Clifton, Bristol, September* 14, 1876.

Sphinx Convolvuli at Witham.—Two specimens of Sphinx Convolvuli have been captured in this town during the past week, and brought to me alive; but having passed through several inexperienced hands they are sadly rubbed.—*W. D. Cansdale; White House, Witham, Essex, Sept.* 16, 1875.

Sphinx Convolvuli at Hawley.—I had a specimen of Sphinx Convolvuli given me yesterday (September 20th). It was captured on a straw-rick in this village by a labouring-man.—*H. Jones; Hawley, Farnboro' Station, September* 21, 1875.

Sphinx Convolvuli at Gravesend.—I do not know whether Sphinx Convolvuli has been universally abundant this year, but I have succeeded in capturing twelve, and three others were brought to me. They were nearly all caught at petunias, between half-past six and eight.—*H. N. Ridley; Cobham Vicarage, Gravesend.*

Sphinx Convolvuli at Gravesend.—On Friday last, September 17th, a specimen of Sphinx Convolvuli flew into my gardener's cottage, attracted by the light. After careering once or twice round the room, and unfortunately dashing itself against the ceiling, it alighted on the table, where it was secured. It proved to be in fine condition, with the exception of a slight injury to the thorax.—[*Rev.*] *P. H. Jennings; Gravesend, September* 20, 1875.

Sphinx Convolvuli at Huddersfield.—On Monday, September 20th, at Armitage Bridge, Huddersfield, a specimen of Sphinx Convolvuli was knocked down by some boys, and fearfully damaged.—[*Rev.*] *G. C. B. Madden; Armitage Bridge, Huddersfield, September* 21, 1875.

Sphinx Convolvuli at Hammersmith.—Last evening, September 20th, while at a friend's house, I captured a fine specimen of Sphinx Convolvuli, which had been attracted into the room by some lilies (Lilium auratum), over which it hovered, extending into them a proboscis of unusual length. —*D. G. Cowan; Hammersmith.*

Sphinx Convolvuli near South Hackney.—This insect appears to be somewhat common this season. A specimen was brought to me on the 16th inst., taken in a garden near here. I visited the locality the same evening, and captured a splendid female, and have since taken two females in beautiful condition. To-day a friend brought me the remains of a specimen he had rescued from his cat in his garden at Kennington.—*C. J. Biggs; South Hackney, Sept.* 20, 1875.

Sphinx Convolvuli at Barrow-on-Trent.—I took a good specimen of Sphinx Convolvuli here, on the 6th September, flying over petunias.—[*Rev.*] *G. A. Smallwood; Barrow-on-Trent, Derby, September* 8, 1875.

Sphinx Convolvuli at Eastbourne.—On the 10th of September I took Sphinx Convolvuli at rest on an old post in the marshes here. It appears to be plentiful here, as several have been taken.—*W. E. Parsons;* 35, *Langney Road, Eastbourne, September* 20, 1875.

Sphinx Convolvuli in Dublin.—I received a specimen of this moth on the 17th of September, sent from Dublin, where it had been found dead in the streets.—*T. H. Ormston Pease; Cote Bank, Westbury-on-Trym, Sept.* 22, 1875.

Sphinx Convolvuli at Cullercoats.—Sphinx Convolvuli was taken at rest on a scaffolding-pole at South Shields, in the last week of July, and is now in my collection. I saw another flying over some carnations in my garden at Cullercoats on the 24th ult. It seemed stupefied for a moment by the glare of the lantern, so I got a good look at it, but not having my net in my hand I lost it. I have also taken Hadena Chenopodii at sugar. It is mentioned as a southern species in 'British Moths.'—*J. C. Wassermann; Beverley Terrace, Cullercoats, near Newcastle-on-Tyne.*

Sphinx Convolvuli at Tottenham.—On the 31st of August I had a fine specimen of this species given me, which was taken at Tottenham the previous evening, attracted by light. This morning I received another from Bexley, taken hovering over flowers in a garden. Unfortunately the latter is much damaged.—*B. Cooper; Higham Hill, Walthamstow, September* 18, 1875.

Sphinx Convolvuli near Stoke Newington.—I had given to me last Saturday, by its captor, a specimen of Sphinx Convolvuli, taken from off a gate in the neighbourhood of Stoke Newington.—*C. Harris;* 32, *Pritchard's Road, E., September* 15, 1875.

Sphinx Convolvuli near Newton Abbot.—A fine female specimen of Sphinx Convolvuli was brought me yesterday, which had to its domicile, and changes to a chrysalis. The larva is lightish yellow, slightly hairy, with light brown head. The chrysalis is very rough, and wriggles very much. Hepialus Velleda is common in the woods here. You describe it as being a northern species.—*William Purday; 132, Dover Street, Folkestone, August* 31, 1875.

Deiopeia pulchella at Budleigh-Salterton.—I caught a fine specimen of Deiopeia pulchella at Budleigh-Salterton, South Devon, on the 18th of August last, on a cloudy but hot day, about twelve o'clock. The locality was on the edge of a high cliff, where it flew out of some herbage.—*A. E. Wileman; 10, Westbury Park, Redland, Bristol, September* 16, 1875.

Deiopeia pulchella at Biggleswade.—I have just taken a very good specimen of Deiopeia pulchella (the crimson speckled). It was in a grass-close, or meadow. Its manner of flight reminded me of the veneers as it flew around me, and soon settled again. Its white appearance on the wing was very conspicuous, and would be sure to attract attention. —*J. King; Langford Road, Biggleswade, Beds, September* 20, 1875.

Deiopeia pulchella near Kingsdown.—I have the pleasure to inform you that I captured, on the 19th of September, a fine specimen of Deiopeia pulchella, in the undercliff near Kingsdown.—*Charles Boden; 127, Tooley Street, September* 22, 1875.

Deiopeia pulchella near Paignton.—I took another specimen of Deiopeia pulchella on the 18th of September, at Saltern Cove, near Paignton, where I had the pleasure of recording the capture of one last year. The specimen I have just taken is a very worn male. I roused it accidentally while walking through an uncultivated field near the coast.—*J. A. Lilly; Collaton Parsonage, Paignton, South Devon, September* 23, 1875.

Deiopeia pulchella at Eastbourne.—On Saturday, the 18th of Septemder, while capturing Colias Hyale and C. Edusa, I was fortunate enough to take two specimens of Deiopeia pulchella. They were flying leisurely in a clover-field, taking short flights from one flower to the other. One of them appears to be a variety, the fore wings being nearly destitute of the crimson spots, and is a much larger specimen than the paper. Now, may not these be the progeny of the females that have partaken too freely of the bottle (cyanide), and their constitution been impaired, or are they going to hybernate? as I am told is their habit.—*G. Haggar; Folkestone.*

Leucania albipuncta at West Wickham.—While sugaring at West Wickham Wood, on the 24th of August last, I had the good fortune to take a specimen of Leucania albipuncta; and, as I believe it has never been taken in that locality before, my capture may be worth recording.—*C. Channon; Woodlands, Lewisham, September* 22, 1875.

Leucania albipuncta at St. Leonard's-on-Sea.—I had the good fortune to take a specimen of Leucania albipuncta, at sugar here, on the 20th of August. It is in fair condition.—*John T. Sarll; Beauvoir House, Hollington Park, St. Leonard's-on-Sea, August* 31, 1875.

Whereabouts of the Specimen of Leucania unipuncta.—As it is desirable that the whereabouts of a British specimen of Leucania unipuncta should be known to entomologists, I beg to inform them that the specimen taken by me in the New Forest, last March, is now in the cabinet of my friend Mr. J. Ross, of Bathampton, near Bath.—*E. C. Parker; Hampstead, August* 19, 1875.

Acronycta Alni near Nottingham.—I had the good fortune to obtain, on August 18th, two larvæ of Acronycta Alni, feeding on a plum-tree in our garden here at Ruddington (four miles from Nottingham). Another collector also took one near here about three years ago, and was successful in producing the imago. I am afraid I shall not have the same luck, as mine are not eating at all yet, and seem very uneasy in the cage.—*S. Birkin; Ruddington Grange, Nottingham, August* 19, 1875.

Acronycta Alni at Chatteris.—I have great pleasure in recording the capture of a single larva of Acronycta Alni here on the 18th of August. It was taken on a wooden bench under a walnut-tree, which was three or four yards from a row of lime-trees, in the middle of the day. The larva had only three or four bristles on it, and refused to eat any food I gave it, but entered a hollow bean-stalk provided for it on the 20th. This is, I believe, the first occurrence of A. Alni in this neighbourhood.—*A. Harold Ruston; Aylesby House, Chatteris, Cambridgeshire, August* 21, 1875.

Cirrhœdia xerampelina at Grantham.—During the night the end of August. For P. lætus I was chiefly indebted to the keen sight of a kind friend, more accustomed to their rapid flight.—*Battershell Gill; 9, Cambridge Terrace, Regent's Park, September* 13, 1875.

Spilodes palealis at Brockley.—It may be interesting to some of the readers of the 'Entomologist' to know that I took a specimen on the wing of Spilodes palealis on the railway-banks, near Brockley, New Cross, on the 4th of August. I believe this is the second capture of this insect there.—*Arthur Bliss; 4, The Terrace, Ladywell, near Lewisham, August* 20, 1875.

Cosmia pyralina.—This species seems to be but poorly represented in most cabinets, the localities where it occurs being few and far between. It has, however, been known to occur pretty continuously in Monk's Wood, near Huntingdon; and being in this part of the country at the time of the insect's appearance I determined to try for it. I was somewhat unfortunate in not being able to get over before the 6th of August, and then only for a single night. Mr. Richardson, of Clare College, met me at the 'White Hart,' Alconbury, Weston, where we took up our quarters, though not so comfortably as we could have wished. One wood we selected, from the group standing in Alconbury, Upton and Sawtry parishes, was that in Sawtry, St. Judith, which, though somewhat smaller than Monk's Wood, has not been worked so much by entomologists. We sugared some sixty or seventy trees, almost without exception oaks. During the first round we took a couple of Cosmia pyralina on the fifteenth tree, from which we augured much future success. This longing, however, was not to be fulfilled; and the only other C. pyralina we got were two on one tree towards the end of our first round. We commenced a second round about half-past ten, but found insects so scarce that it took but little over half an hour. The other insects attracted by the sugar are scarcely worth mentioning: Noctua baja and Cosmia trapezina swarming everywhere, with a few Tryphæna janthina, and single specimens of Tryphæna fimbria, Caradrina alsines, and Epunda viminalis. Three of the Cosmia pyralina taken were females, from which I infer that had we been a week or two earlier we should not have found the species so scarce.—*Gilbert Raynor; St. John's College, Cambridge, August* 23, 1875.

of the plants amongst those which grew in this part of the country, neither could I now find anyone who had done so. I enquired of all those who were likely to be able to afford me the desired information, without success. A resident, well versed in Botany, informed me that he had not seen either plant, here, or in North Wales. The first larvæ that were hatched died on whatever I gave them; and with a forlorn hope I gave them the leaves of many trees and shrubs, which I knew they were not likely to eat or to live on. Those which hatched later I was able to rear upon buckthorn, kindly sent me every week in tin boxes by Mr. Holland, from Reading. But still the food-plant of G. Rhamni must be here, either in the form of buckthorn or some other plant, as the butterfly, though scarce, is not unfrequently captured. I have seen three specimens only on the wing, two of which were taken. These occurrences were severally in the years 1868, 1871, 1875. At the time I was in need of the plants I searched well the locality in which the first insect had been taken, which was half-way down a rocky hill-side,—a favourite resort that same year for Colias Edusa,—in a densely-wooded lane; but here I could only find oak, ash, elm, whitethorn, blackthorn, hazel, rose, honeysuckle, and innumerable low plants, and not a sign of buckthorn. I visited the gardens, plantations and woods around, with no better success; and a letter in the local paper has not had the desired effect of discovering either of the buckthorns in this county. To show the advanced state of botanical knowledge in these parts, I may mention that during my search for the Rhamneæ I had blackthorn, barberry, and rose, brought to me as one of those plants.—*Owen Wilson; Carmarthen, August* 12, 1875.

Alfred Wood.—Name of a Moth.—Will you oblige me by naming the enclosed effigy of a moth? taken at sugar in these (the Wick) woods on the 12th August. The upper wings are dark brown, mottled with a still darker shade of the same colour; the hind wings, with the exception of a broad border of intense black, are yellow, with a light fringe, and a pale oblong mark on the inner margin. I have also taken, more or less freely, in the same locality, during the present season, Cymatophora duplaris, Diphthera Orion, Acronycta Ligustri, A. Menyanthidis, Synia musculosa, Apamea fibrosa, Rusina tenebrosa, and Cosmia diffinis.

were still moving, although the motion at the other joint had ceased. The butterfly was quite dead at the time it was set, and I am quite unable to account for the facts stated above.

[I am unable to give any explanation of this fact, but it is by no means an unusual occurrence.—*Edward Newman.*]

G. Haggar.—Food-plant of Setina irrorella.—I have a good batch of eggs of Setina irrorella. Can you kindly inform me what the larvæ feed on? for on reference to the 'British Moths' I find the particulars very scant; indeed, it is there stated that it is taken in situations where the tree-lichens grow. My female was taken in the railway cuttings between Dover and Folkestone, and not a vestige of tree or shrub near; also two males were taken in a similar situation. Perhaps since the account was written something more may be known of its history, and I should like to rear them if possible; though if lichen-feeders I may find it difficult.

[I shall be obliged to any entomologist who will give any additional information on this subject.—*Edward Newman.*]

Joseph S. Baly.—Honey Bees (Entom. vii. 293).—The phenomenon which your correspondent describes is not uncommon amongst bees, and is thus spoken of by Langstroth in his work on the 'Honey Bee,' p. 116:—"Bees sometimes abandon their hives very early in spring, or late in summer or fall. Although exhibiting the appearance of natural swarming, they leave, not because the population is so crowded that they wish to form new colonies, but because it is either so small or the hive so destitute of supplies that they are driven to desperation. Seeming to have a presentiment that they must perish if they stay, instead of awaiting the sure approach of famine, they sally out to see if they cannot better their condition." Bees, when sallying out under these circumstances, are termed a vagabond swarm: sometimes they try to gain entrance to another better-supplied hive, or more often fall to the ground from exhaustion, and perish. I fear the occurrence is likely to be frequent this year, as, owing to the unusual amount of wet, very few stocks have laid up any stores for the winter, and most are weaker than they were in early spring.—*H. Jenner Fust, jun.; Hill Cottage, Falfield, Gloucestershire, August* 6, 1875.

J. S. Woodhouse.—Flies sticking to Glass.—What is the cause of flies adhering by the legs to window-panes, and about ten days, but I am glad to say that now only a few stragglers remain. I do not think I exaggerate when I say that there must have been thousands of them in my room where I was performing some operations with cantharides. If you can tell me anything of their history, and where they are likely to have come from, I shall be greatly obliged by your doing so.

[The fly is unquestionably Musca pluvialis; but with regard to their economy I have to confess my entire ignorance, and shall be obliged for information. I have not only heard of, but known, instances of flies assembling indoors in such large numbers, but I cannot find out the attraction, or what it is that induces a line of conduct apparently so much at variance with their general habits.—*Edward Newman.*]

T. R. Archer Briggs.—Gall on Potentilla reptans.—I enclose specimens of another gall from the neighbourhood of Plymouth, and shall be very glad to know the name of it, although it may prove to be but a common one. I found it on the 30th of August, in a pasture in the Tavy Valley, near Plymouth, Devon, occurring, as you will see, on the stems and petioles of the creeping cinquefoil (Potentilla reptans). I do not remember to have noticed it previously.

[Mr. Fitch kindly hands me a reply, as under:—"I believe this gall is included, both by Marshall and Müller, under Curtis's name of Brevicornis, which is probably a synonym of Aulax Potentillæ of Hartig; or, as Foester has it, Xestophanes Potentillæ de Villers = Aulax splendens of Hartig." —*E. A. Fitch.*]

Joseph Anderson, jun.—Effect of Acids on Green Insects. —I have in my cabinet a foreign beetle resembling a gigantic specimen of Aromia Moschata. The name of it is, I believe, Golofa Porteri, and it should be a brilliant green colour; but one day, thinking to "kyanise" it, I saturated it with phenic acid, and was mortified by seeing it change to a coppery red. Could you, or any of your correspondents, tell me of an alkali that would be likely to restore the original colour?

[The effect of acid on the colours of insects is so great that it is better to avoid the use of them altogether. In the case of metallic colours it is less observable than in the delicate wings of Lepidoptera. I cannot mention any drug from hermaphrodite specimen of the common blue (Polyommatus Alexis), the left wings being female, while the right ones are male; this is equally apparent on both sides. Can you tell me if this is a rare occurrence? The specimen was taken in a grassy lane in Horley, on the 1st of September, and is now in the cabinet of Mr. Murray Aston, of Hatchgate, Horley. This gentleman has taken nearly thirty specimens of the feathered gothic moth (Heliophobus popularis) at a lamp in his hall. Can you inform me of the food-plant of this species in its larval state? If I am not asking too much, will you tell me how to make dragonflies keep their colour after death, and where I can procure a work on this order of insects? I may add that Mr. Aston took all his Popularis during the last week in August.

[(1) Hemigynous, or half-female, specimens of Lycæna Icarus (Alexis), are by no means uncommon. (2) The larva of Heliophobus popularis feeds on grasses. I have said all I know about this insect at p. 291 of 'British Moths,' where the larva is described. (3) In order to preserve the colour in the bodies of dragonflies, do not kill them until three or four days after they are taken, when the body will be empty. Having killed them with cyanide of potassium, slit the abdomen open with a pair of small scissors, take out the contents, and fill up the cavity with a piece of writing-paper, rolled up in the same form as the body.—*E. Newman.*]

Henry N. Ridley.—Œdemera cærulea.—*E. Newman.*

H. Sturmer.—I am unable to give an opinion as to the name of the larva described.—*E. Newman.*

G. A. Smallwood.—*Variety of Cirrœdia xerampelina.*—I have this year bred a dark variety of this moth. The colour of the dark central bar is spread over the whole wing, the usual yellow being entirely absent, except on the edges of the central bar, where it forms two conspicuous yellow lines, reaching from the inner margin quite up to the costa. This variety is very distinct and striking; the more so as this insect is so little liable to variation.

[I was formerly inclined to consider this a distinct species; but seeing that Guenée ('Noctuelites,' i. 402) considers it a variety only,—a judgment in which my late friend Doubleday entirely concurred,—I cannot presume to differ from such authorities.—*Edward Newman.*]

felt by the members present at the death of the late Mr. Henry Doubleday, whose services to Entomology have been of immense value for many years past, and whose invariable kindness has endeared him to all who have known him."

Death of Mr. Doubleday.—Henry Doubleday, who was without exception the first Lepidopterist this country has produced, died at his residence, at Epping, on the 29th of June, 1875, sincerely lamented by all who enjoyed the pleasure and advantage of his acquaintance. Had he lived two days longer he would have completed his sixty-seventh year. Mr. Doubleday was remarkable alike for his extensive knowledge of British Lepidoptera, and for the unequalled liberality with which he imparted that knowledge to others. He inaugurated a new era in Entomology by introducing uniformity in the nomenclature of species; thus making the names of British insects correspond with those in use on the continent. At present there is no decision as to the destination of Mr. Doubleday's collection of Lepidoptera. Various propositions have been made, but the trustees have not fallen in with either of them. The house, out-buildings, furniture, and books, have been sold; and nothing now remains at Epping of the great entomologist but a plain tablet in the Friends' Burial Ground, showing the spot where his remains rest in peace.—*Edward Newman.*

Errata.

In my description of the larva of Emmelesia decolorata (Entom. viii. 194), *for* "Ephestia elutella" *read* "Ypsipetes elutata"; *for* "central" *read* "ventral".—[*Rev.*] *G. A. Smallwood; Barrow-on-Trent, Derby.*

I see from the September number of the 'Entomologist,' that you have confused my communications with those of Mr. Harwood. The records of "Tryphæna subsequa," "T. interjecta," and "Plusia interrogationis" (Entom. viii. 199), are mine, not Mr. Harwood's.—*Geo. Brook; Fernbrook, Huddersfield.*

Hydrœcia Petasitis feeds on the "butterbur" (Petasitis vulgaris), not on the "coltsfoot," as stated (Entom. viii. 195).

dead, with which the attention of naturalists has been too exclusively occupied. Mr. Gosse writes as follows:—

"In digging their mountain-gardens the negroes often expose the curious subterranean nests of the trap-door spider (Cteniza nidulans), many of which are brought to me. This spider makes its tubular dwelling in soft earth, frequently choosing cultivated ground, on account doubtless of this quality. Each nest is cylindrical, or nearly so, from four to ten inches deep, and about one inch in diameter; the bottom is rounded; and the top, which is at the surface of the soil, is closed very accurately with a circular lid. They are not all equally finished, some being much more compact, and having the lid more closely fitted than others. Some have irregular bulgings and ragged laminated off-sets on the outer surface; but all are smooth and silky on the inside. This smoothness, however, does not preclude any little irregularities or unevenness of surface; nor is it glossy: its appearance rather resembles that of paper, which has been wetted and dried again; it is always of a reddish buff hue, but the outside is stained of the colour of the surrounding earth. The mouth of the tube and the parts near it are very strong; the walls here often having a thickness of from an eighth to a quarter of an inch, but the lower parts are much thinner. The lid is continuous with the tube for about a third of its circumference, and this part may be called the hinge, though it presents no structure peculiar to itself; it is simply bent at a right angle, as is manifest if a nest be cut longitudinally through with scissors, the incision passing through the midst of the lid.

"The mode of construction I judge, from examination of many nests, to be this. The spider digs a cylindrical hole in the moist earth with her jointed fangs or mandibles, carrying out the fragments as they are dislodged. When the excavation has proceeded a little way she begins to spin the lining, which forms the dwelling. I conclude thus because nests are occasionally found a few inches in length with the lid and upper part perfect, but without any bottom, these being evidently in course of formation. I suppose that she weaves her silk at first in unconnected patches against the earthy sides, perhaps where the mould is likely to fall in; and thus I account for the loose, rough laminæ of silk that are always found projecting from the outer surface. These are would keep her door shut against the efforts of an enemy; for what would have been the use of having them in the tube, *close to the lid*, so that not the eighth of an inch intervenes between the series of the lid and that of the tube, when the former is tightly closed. I would suggest whether they may not be air-holes, for so tight is the fitting of the lid, and so compact the texture of the material, that I should suppose the interior would be impermeable to air but for this contrivance; and as those in the horizontal lid might possibly be closed by minute particles of earth rolling on it, the second row around the edge of the perpendicular tube, just at the surface of the ground, would still be available in such a contingency. They may admit also an appreciable amount of light."

I am not disposed to pursue the subject of these minute holes further than to say that these holes suggest to my mind the idea of a needle and thread having been passed through and through, and the needle and thread subsequently withdrawn. But I will here mention the occurrence in Britain of a spider closely allied to the trap-door makers, the particulars respecting which were communicated to the Linnean Society by myself in February, 1856, and were subsequently published in the 'Zoologist' for that year (Zool. 5021). This spider is Atypus Sulzeri of Latreille, the Oletera atypa of Walckener; and a full account of its doings is given from the observations of Mr. Joshua Brown, of Cirencester, who suggests that it was feeding on an earth-worm at the time of capture. A female only was obtained, the males eluding the most diligent search; and Mr. Brown expresses his wonder where they could possibly secrete themselves. There is no trap-door to the domicile of this spider, which consists simply of a single tube constructed in the earth. Walckener, in the first volume of 'Histoire Naturelle des Insectes Aptères,' thus records its economy at page 244:—

"The female constructs, in rather moist places, a subterranean gallery, first in a horizonal direction, and then turning downwards. In the interior of this gallery she constructs a very close, white, silken tube, which she strengthens with bits of grass and moss; and at the bottom of this she deposits her eggs in an oval mass, enveloped in a web of white silk, and fixed by threads at each end. She leaves part of the tube hanging out of the hole to protect the entrance: this external of this tube visible on the bank is about two inches in length, pendant, and always inflated; it is of a darker colour than the subterranean portion of the tube, and agrees in this respect with the general surface of the bank. I took home one of these tubes in a collapsed state, or with the sides pressed together, and having the spider at the extremity. On opening the box I perceived a movement throughout the tube, as if it were undergoing the process of inflation; this soon subsided. The next morning, however, I was surprised to see the tube inflated throughout its entire length, more especially at that end which had been exposed on the bank. How can the spider effect this? In some of the tubes it is very difficult to discover any external aperture; but, in that portion which is exposed and is distended more than the rest, I sometimes discovered one or more minute openings, protected or covered by a little valve or door. In some nests these openings are not to be detected; when present they open towards the bank. Although very loosely constructed at the lower extremity, I do not think there is an opening there, except when the spider is deepening her burrow; or, I think, in some instances, the spiders would have escaped through it when I extracted the sack. This was never the case."

This process of inflation is one of the greatest possible interest. Although, through the courtesy and kindness of Mr. Brown, I am possessed of ample materials for doing so, I never could discover the mode of inflation. The object was more easy to account for, since the adhesive nature of the silken lining of the sack rendered the walls very liable to cohere, and thus the tubular character of the structure would be destroyed.

Mr. Brown most kindly sent me living specimens, in order that I might examine them for myself; which I did with great deliberation and care, but without obtaining any further information. I particularly directed my attention to the subject of food, Mr. Brown having conceived the idea that the spider fed on earth-worms. This idea seems to arise from his having found a mangled earth-worm, in connection with the tube, during the course of his diggings and investigations; and more especially from his having been unable to find the wings, legs, or other parts of insects, attached to

"I will now relate what I saw on one of these occasions, for there has been much speculation as to the manner in which the spider clings to the door, and offers the determined resistance which is experienced. No sooner had I gently touched the door with the point of a penknife than it was drawn slowly, with a movement which reminded me of the tightening of a limpet on a sea-rock, so that the crown, which at first projected a little way above, finally lay a little below the surface of the soil. I then contrived to raise the door very gradually, despite the strenuous efforts of the occupant, till at length I was just able to see into the nest, and to distinguish the spider holding on to the door with all her might, with her fangs and all her claws driven into the silk-lining of the under surface of the door. The body of the spider was placed across and filled up the tube, the head being away from the hinge; and she obtained an additional purchase in this way by blocking up the entrance."

Mr. Moggeridge believes that whenever a spider resists in this way she makes the needle-holes, to which former allusion has been made; but, without wishing to controvert the opinion of so excellent an observer, I may perhaps be excused for remarking that the regularity of these minute holes rather militates against the supposition that they are caused by this process of holding on with fangs and claws to prevent the lid being opened by an enemy.

I have here to mention a fact and a surmise in connection with these trap-doors that seems to partake rather of the character of romance than of sober reality. The door is covered with Lycopodium and moss, presenting exactly the same appearance as the surrounding surface. Mr. Moggeridge thus describes one particular instance:—

"The moss on the door grew as vigorously, and had in every way the same appearance, as that which was rooted in the surrounding earth; and so perfect was the deception that I found it impossible to detect the position of the closed trap-door, even when holding it in my hand. There can be no doubt that many nests escape observation in this way; and the artifice is the more surprising because there is strong reason to believe that this beautiful door-garden is deliberately planted with moss by the spider, and not the effect of mere chance growth." (P. 97.)

was published; but those cited by Mr. Moggeridge are among the earliest and best. The most complete and elaborate are by Patrick Browne, in 1756; by the Abbé Sauvages, 1763; by Rossi, in 1778 and 1794; by Mr. Gosse, 1847; and finally by Mr. Moggeridge, in 1873. The description quoted by our correspondent is very exact: but these spiders generally construct their habitations in the earth, and not in the bark of trees. This may, therefore, prove a species of trap-door spider new to science."—*Edward Newman.*

It appears that it attracted the attention also of another reader, who designates himself "Anglo-African," who wrote the following paragraph, which appeared in the 'Field' of October 17th:—

"It may interest your readers to learn that the trap-door spider, described in the 'Field' of October 10th, is also found in the neighbourhood of the Vaal River, South Africa, in the regions of the Diamond Fields. I have myself discovered two trap-doors. The first time, when lying in my tent one hot Sunday afternoon, with the curtains of the tent up, I observed the trap open just outside the tent, and the spider come out, leaving the trap open. On being slightly alarmed, by pushing a stick in his direction, he retired at once, and closed the trap. So very like the surface was this, that, looking away to call a 'chum' to watch him, I could not again see the place. However, our attention was rewarded in a short time by the spider again appearing,—I suppose on a foraging expedition. It was suggested to try if he was afraid of rain, and, on sprinkling the ground on which he had taken his afternoon's walk, he beat a retreat again. This was repeated several times on his finding nothing was the matter. The door, or trap, was of an oval form, about three-quarters of an inch by half an inch in size, and appeared to have a capital hinge, and was countersunk, so as to be level with the ground, and fitted in a marvellous way. We took bearings of the spot, and intended to have another interview with our little friend; but a 'new rush' set in, and he was completely forgotten. I should mention that this was in gravelly soil. On the other occasion I and my chum were 'prospecting,' but not for trap-door spiders. However, we came on the tube of one in digging away the surface sand, and, carefully working

I have distributed them among entomological friends, especially sending some to the Rev. O. Pickard-Cambridge, begging him to investigate the matter, and report to the 'Field' newspaper,—a journal which has distinguished itself for years by the amount and accuracy of the Natural History information it has circulated. Mr. Cambridge, with his usual courtesy and energy, at once entered on the task, and reported as follows:—

"*A New Genus and Species of Trap-door Spider from South Africa.*—An account (extracted from a South-African newspaper) of the discovery by Mr. Dyer of a trap-door spider, whose nest is made in the bark of trees, was published in the 'Field' of October 10th, 1874. Examples of the nest, with the portion of bark in which each is constructed, together with the spider inhabiting one of the nests, have lately been handed to me by the Editor, with a request that I would write a few words upon the subject. It will, therefore, I think, interest the correspondent who sent them to learn that the spider belongs, as it appears to me, to a genus not hitherto characterised; its nest also being of a different type from that of all other trap-door spiders with which I am acquainted. The genus, for which I propose the name Moggridgea (in memory of my kind friend, the late lamented student of trap-door spiders, Mr. J. T. Moggeridge), is allied to Nemesia, *Latr.*, but differs from it, among other characters, notably in the absence of the usual short, strong spines at the fore extremity on the upper side of the falces, as well as in the wide separation of the eyes of each of the two lateral pairs. The spider which accompanied one of the nests is an adult female, and measures five and a half lines in length. The cephalo-thorax and falces are of a deep shining black-brown colour; the legs, which are short and strong, are of a lighter brown, the metatarsi of those of the second pair being of a clear yellowish white; the abdomen is of a dark purplish brown; and the tibiæ, metatarsi, and tarsi of the first and second pairs are furnished underneath, on either side, with a row of strong spines. The nest consists of a silken tube, scarcely more than an inch in length, rugged on the outside in such parts as may be exposed, and formed in the folds and interstices of the rough bark. This tube is closed with a hinged lid of an oval or circular shape (according to the important specific characters than the female. A subsequent correspondent, 'Anglo-African,' in the 'Field' of October 17th, 1874, speaks of this spider being also found in another locality; but his description of the nest, its great length,—two feet six inches,—and its situation, show that it belongs to a much larger spider, and one of quite a different genus, probably to an undescribed species of Nemesia or Cteniza.—*O. P. Cambridge; Bloxworth Rectory, August* 20, 1875."

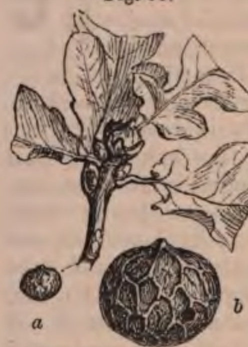
I trust that the interesting subject of trap-door spiders burrowing in the bark of trees, or at any rate utilizing the fissures of bark for the purpose of constructing their silken domiciles, will claim the attention of our correspondents in South Africa, and especially of the Messrs. Woodward, who have already done so much to illustrate the Natural History of these little-known regions.

EDWARD NEWMAN.

Descriptions of Oak-galls. Translated from Dr. G. L. MAYR's 'Die Mitteleuropäischen Eichengallen' by E. A. FITCH, Esq.

(Continued from p. 172.)

Fig. 30.



APHILOTHRIX GLOBULI.
In situ: *a*, detached; *b*, magnified.

30. *Aphilothrix globuli*, Hart.—This green spherical gall is found in the terminal or axillary buds of Quercus pubescens (and probably also of other oaks); one-half or more of the gall is covered with the bud-scales, and has a diameter from 3 to 4·3 millimetres. At the point opposite the base there is a wart (or a blunt cone) of a yellow or rusty red colour. The naked green surface of the gall is soft when fresh, and shows a sappy substratum, which, however, dries up in the autumn, and produces on the still green surface reticular plications or wrinkles. Inside the soft layer is the woody inner gall, which contains a larva-cell. The surface of this inner gall exhibits reticular rings. According to Hartig the fly emerges in the month of February.—*G. L. Mayr.*

On Capturing, Killing and Setting Hymenoptera.—[The following recommendations and suggestions are by Mr. Frederick Smith, of the British Museum, and are published in the 'Entomologist's Monthly Magazine' for August. I have, perhaps, captured, killed and set more British bees than any man living, and therefore am qualified to express an opinion on Mr. Smith's method. Mr. Smith's observations are elicited by a previous paper of Dr. Kriechbaumer's, the advice given in which Mr. Smith by no means inclines to follow. After criticising somewhat severely the Doctor's method, Mr. Smith proceeds as follows, and I bear most willing testimony to the value of his advice. It comes here very appropriately as a sequel to Mr. Fitch's recommendations in the case of gall-flies, which appeared in the July number of the 'Entomologist.'—*Edward Newman.*]

"I will, as briefly as I can, describe my own method of capturing and setting Hymenoptera, and leave it for Hymenopterists to try both methods, and make known their opinions which is the better. I capture my insects with a bag-net (when I consider a net necessary, because I really capture three-fourths with my fingers) made of the very finest white net that is manufactured, twenty-two meshes to the inch: this is only to be procured at a few of the best shops in London. When collecting, I carry a good supply of the best block pill-boxes of different sizes, packed in a flat tin case that fits a satchel; this prevents the boxes being crushed in travelling to my hunting-ground. On arriving there I transfer the boxes to the right-hand pocket of my coat. When I capture an insect in my net I select a proper-sized box, take off the lid, and secure the insect in it against the side of the net; then, with a little manipulation, I put on the lid. The insect is now quite uninjured, with not a hair on its body ruffled. Each capture I thus secure in a separate box. These boxes I put into the left-hand pocket of my coat; and when I have filled a number, or have taken some great rarity, I put them back into the tin case; if a rarity, I frequently put the box in which I first secured it into one a size larger. Before starting on an excursion I examine all my boxes, to be sure that the lids fit closely; if they do not, a strip of paper pasted round the rims makes them secure. On arriving home I proceed to kill the insects: I take first until, with a brace made of a strip of card shorter than the table, and pierced through at one end with a pin, the wings are secured in their proper position. The last process is to arrange the antennæ. This can sometimes be done by placing them on the end of the table on which the wings are spread; but, in the majority of cases, it must be done with pins. The time necessary for insects to remain on the setting-boards depends upon a variety of circumstances. I am here alluding only to insects recently caught. In the height of summer, if dry and hot, a fortnight may do for small or slender insects, but I seldom remove any so soon. Bombi should, even in hot, dry weather, remain at least a month, and at other times must be left five or six weeks, or the wings will be apt, in damp weather, to fall out of position."—*Frederick Smith.*

Life-history of the Pear-tree Slug. By Edward Newman.

The "potato-bug" seems reluctant to cross the Atlantic, and the panic it engendered is dying out, in spite of the energy which some practised scribe or expert conversationist will occasionally strive to maintain or renew the excitement. As if purposely to avail itself of the procrastination of this coy and somewhat problematical mischief-maker, a real insect grievance has taken up its abode in our midst, and seems to demand serious attention. The pear-tree slug is a reality, tangible, palpable, visible, smellable,—for it appeals most forcibly to the olfactory organs.

Mr. Fitch, to whom allusion will be made again hereafter, in defence of the slug against this charge, thinks that the smell is only emitted under circumstances of provocation, and may possibly be protective only,—a sort of warning to the aggressor not to taste a creature whose scent is so offensive, lest he should find the flavour as repugnant to his palate as the odour to his olfactory organs. This kind of protection is possessed by the larvæ of many other sawflies.

Complaints as to the burnt-up appearance of our pear-trees,—and, by the way, of our cherry-trees as well—inquiries as to the cause; and a plethora of infallible remedies, with polysyllabic and for the most part unpronounceable names, the substance of this essay at p. 418 of his 'Treatise on Insects Injurious to Vegetation.' This second account, with some abbreviations and modifications, has been adopted by all subsequent writers; and its chief points are incorporated in the present memoir, not, however, unadvisedly, or without a careful study of the insect in a state of nature. I have also to acknowledge the great assistance I have received from Mr. Edward A. Fitch, one of the best observers of insect life-history that ever lived, and one who has laboured, and is still labouring, most efficiently in the elucidation of our British oak-galls.

In June the mother-fly emerges from the earth in which she had voluntarily buried herself. Her first thought, like that of our own female relatives, is matrimony; and doubtless her powers of attraction, as with us, are taxed to the uttermost; but in what manner they are exercised philosophers have failed to discover. Her second thought, or instinct, or duty, is preparing for a family. A word as to her personal appearance: she is always in mourning; even before matrimony she wears the sable garment of widowhood; her head, antennæ, body and legs are almost entirely clothed in black; her wings, otherwise colourless, wear a blackish shade across their middle. Her native tree in this country is the sloe. By beating a sloe-bush, at the beginning of June, into a net or umbrella, after the manner practised by entomologists when thrashing for caterpillars, you may obtain some of these little black, and seemingly lifeless, creatures, which are about the size of a grain of wheat. If they fall into the umbrella—held of course upside down—they will roll over and over to the bottom of the concavity, and there lie perfectly motionless; of course their object is to assume the semblance of death, so as to deceive the uninitiated. A great number of insects have this habit of feigning death, evidently with the object of rendering their appearance unattractive, and themselves unrecognisable to those other insects, or animals of any kind, which make living insects their customary food. As though purposely to aid in this life-preserving, and therefore very excusable, deception, their bodies are so fashioned that by bending their heads downwards beneath their breasts, pressing their antennæ, legs and wings closely against the body, and resolutely abstaining from all movement, the whole ornithologists may be excused for hesitating to accept, seeing how very brittle are the eggs to which they have devoted their best attention. This faculty of growth in the egg-state was known to Linnæus, and has been recorded by all subsequent writers on this tribe of insects. To criticise or contradict observers so careful as Professor Peck and Dr. Harris is out of the question; but there is one point in which I differ from these most observant and accurate entomologists. Both Peck and Harris either state, or lead us to infer, that the egg is laid and that the larva feeds on the *under* side of the leaf. My own experience is exactly the reverse of this, and agrees with that of the Rev. Charles Bethune, as given at p. 51 of his 'Annual Report of the Entomological Society of Ontario,' which I have lately received through the courtesy of my kind friend Mr. Reeks, of Thruxton. My experience agrees with Mr. Bethune's; I find the larvæ on the *upper* side of the leaf. This want of accord may probably arise from there being several species confounded under one name, and three of them I had named provisionally after the trees on which I found the slug feeding:—Blennocampa Cerasi on the cherry, B. Pruni on the plum or sloe, and B. Pyri on the pear. I find, however, that I am unable to differentiate these in a manner likely to find acceptance with entomologists. I therefore prefer adopting "Æthiops" as a specific name for all our slug-worms, at the same time expressing a feeling of some regret that the word "nigger," the literal translation of Æthiops, should have been applied to the sawfly of the turnip,—a very different insect, and one of which a complete life-history has already been given in the 'Entomologist.' Another question of some interest, as regards the geographical distribution of insects, arises as to the identity of the slug-worms of Europe and America. There is, however, no necessity to introduce this difficulty to the reader, unless it be to say that the three are so similar that I am unable to separate them.

To proceed with our life-history of the one which feeds on the pear-tree. The eggs continue to grow during thirteen days; at first slowly, towards the end of that period more rapidly. On the fourteenth day, according to Professor Peck, the young grub emerges from the egg. I have no doubt this statement is correct as regards the United States, but I rambling would be useless, since the upper cuticle and the parenchyma of the leaf, which constitute their principal food, are always within reach without the trouble of moving. These they consume in a very methodical manner, leaving the lower cuticle entire; this very soon dies, withers, and turns brown, making the whole tree look as though covered with dead leaves.

The process of exuviation, or casting of the skin, obtains in this, as in all other larvæ. Before it is performed the little slug wanders about the leaf with more freedom of movement than usual; it is no longer glued, as it were, to the cuticle. After the skin is cast the slug may be seen licking its old coat, an occupation which seems particularly enjoyable. The mandibles are also incessantly and actively at work; yet the cast clothing does not entirely disappear, although it is certainly diminished: the anterior part seems to be eaten, the hinder part neglected. This observation is made in consequence of the well-known propensity of certain lepidopterous larvæ to make a meal not only of the egg-shell from which they have just emerged, but also of the garments, which are from time to time thrown aside in favour of a new suit. What a saving might be effected if we humans could thus utilise our old clothes instead of feeding on beef and mutton, the price of which seems gradually advancing towards a point which will render the use of such viands impossible. The changing of the skin takes place in America five times. I cannot say that five is the number of ecdyses in England, as I have not counted the new suits worn by English slug-worms. At the last change the slug loses its jelly-like surface, and appears in a neat yellow skin without any viscidity. This occurs nearly a month after their first escape from the egg-shell; the head and segmental divisions are now quite as perceptible as in any other species of sawfly. Henceforward it eats no more, but crawls down the trunk of the tree and buries itself in the earth: at the depth of three or four inches, each forms a neat little oval cell, in which to undergo its final changes to a chrysalis and perfect fly. This cell is formed of earth, but is lined and intermixed with liquid glue secreted in the stomach, and ejected by the mouth. This liquid glue is obviously nothing more than silk in a liquid state, —a preparation with which the larva of nearly every moth, were treated to a plentiful supply of dry sand, thrown up into the higher branches with a shovel, and over the lower ones through a sieve. The sand stuck thickly to the slimy skins of the grubs, completely covering them. Supposing the enemy conquered, no notice was taken of him for some days, when he was found to have recovered from the assault, and to be as vigorous as ever. It was then determined to test the sand experiment on a smaller scale. Several small branches of pear-trees were selected and marked, on each of which were six slugs, and these were well powdered over, and completely covered with sand. On examining them it was found that they had shed their sand-covered skin, and had crawled out as slimy as before. The sand was applied a second and a third time, with similar results. Ashes were next tried in the same manner as the sand had been, and were found equally ineffectual. Seeing then that sand was useless, the slugs were treated to a strong dose of hellebore and water, which soon finished them. Another experiment was tried with a solution of hellebore, and is thus reported:—

"On the 13th of August, at 8 A.M., a branch of a cherry-tree was plucked, on which there were sixty-four slugs. This branch had only nine leaves, so it may be supposed it was thickly inhabited. A dose of hellebore and water was showered on them, about the usual strength,—an ounce to the pailful,—when they soon manifested symptoms of uneasiness, twisting and jerking about in a curious manner. Many died during the day, and only six poor sickly-looking specimens remained alive the following morning, and these soon after died. During the past season (1870) these slugs have been unusually abundant on our pear-trees, in many cases destroying the foliage so thoroughly that they looked as if they had been scorched by a fire, every leaf in some instances dropping from the trees, so that for a time they were as bare as in mid-winter. Nearly a thousand trees in the young pear orchard of the writer suffered severely. During the latter part of June and the early days of July we had no opportunity of inspecting these trees; and when we visited them on the 7th of July they were so much injured that we thought they could not be much worse; and, as the slugs were then full grown and fast disappearing, and as the migrated, either naturally or through the instrumentality of man, from the old to the new continent, or *vice versâ*. It is stated, and I doubt not on good authority, that there are two broods of this mischievous insect in America. At present we know of but one in Britain. Let us hope that a second may not hereafter reveal itself.

EDWARD NEWMAN.

Peckham, October 10, 1875.

Entomological Notes, Captures, &c.

Obtaining Eggs from Captive Lepidoptera.—In the 'Canadian Entomologist' for September Mr. T. L. Mead, of New York, gives a description of a simple and easily-constructed cage for keeping the females of Lepidoptera in health and vigour until the eggs are deposited on the food-plant. As the method in some of its details is new to me, I thought it might also prove so to some of your numerous readers, and therefore copy that portion of his note *verbatim*. Mr. Mead says:—"A notch is cut in the side of an empty wooden-box, through which a branch of willow or other appropriate food-plant is passed, care being taken to select a leafy spray, so as to partially fill the box with foliage. It is then covered with gauze, tacked fast on one side and part way on the adjoining sides, that on the fourth side being held down by a piece of wood fastened to the remaining flap of gauze. This renders easy the examination of the contents at any time. Now, a saucer of dried apples, sugared and partly filled with water, is put in, and the cage is complete. Butterflies, like Limenitis Arthemis, will live in such a vivarium for two weeks and more after their capture, and appear to enjoy the food provided immensely, laying many more eggs than if enclosed in a bag and allowed to perish of hunger and thirst. I have often captured specimens and dropped them in upon the pile of dried apples: instead of fluttering about and endeavouring to escape they instantly unrolled their tongues, and feasted for several minutes upon the repast prepared for them without a motion of the wings."—*Henry Reeks; Thruxton, October* 19, 1875.

Varieties and Deformities.—From time to time the pages agree with the spirit that suppresses all notice of deformity among mankind, and am well pleased to see the same forbearance exercised towards the world of animals.—*Edward Newman.*]

Abundance of Colias Hyale in Suffolk.—I have been surprised not to see your natural-history columns crowded by your entomological correspondents with notices of the occurrence of that, to me, rare butterfly, Colias Hyale. Both it and its near relative C. Edusa have occurred abundantly—the former exceedingly so—in East Suffolk during the last three weeks. A brother of mine, who is collecting, took several specimens of each. I am curious to know if East Suffolk is the only district that has been visited.—*H. J. Rope; Blaxhall, Wickham Market.* [*From the 'Field.'*]

Colias Edusa, C. Hyale, Sphinx Convolvuli, and Catocala sponsa, near Petersfield.—I took here, on September 30th, a rather worn specimen of Sphinx Convolvuli: it was at rest in some long grass when I found it. I also took at sugar here, on August 9th, a fair specimen of Catocala sponsa; and on September 18th, about five miles from here, a good female Colias Hyale. I have also taken this autumn ten specimens of Colias Edusa, of which only two were females.—*Waldegrave; Blackmoor, Petersfield, Oct.* 18, 1875.

Colias Hyale and Sphinx Convolvuli near Birmingham. On the 13th September I captured a good specimen of Colias Hyale near the Ran Dan Woods, about thirteen miles from Birmingham, while out shooting; and on the 23rd I saw one on the wing at Shirley, about six miles from Birmingham. On the 24th I had brought to me a very large specimen of Sphinx Convolvuli, having been captured in a greenhouse in some neighbouring nursery-gardens; and two others at the same time were captured on the outskirts of the town. Both species are exceedingly rare in this neighbourhood, and I never remember having seen either before.—*Walter Ludlow; Solihull, near Birmingham.* [*From the 'Field.'*]

Colias Hyale, C. Edusa, and Sphinx Convolvuli, at Hitchin.—Seven specimens of Colias Hyale and four of C. Edusa have been taken by the boys in this school within the last month. They were all taken on the Midland and Great Northern Railway embankment, a little to the north of Hitchin Station. Two gentlemen have taken specimens of hovering over honeysuckle at dusk, and that we were kindly invited to see them. We determined to capture some if possible, so repaired there that same evening. On one of the garden-walls was a large quantity of honeysuckle in full bloom, which was evidently the attraction. We stationed ourselves in front of it, net in hand; we had not long to wait before they began to put in an appearance; and after several unsuccessful attempts we succeeded in capturing five. We were told that two cats belonging to the house stationed themselves on the wall regularly every evening watching for these moths, and often succeeded in capturing them. September 23rd, a specimen was brought me, very much worn and wasted. September 24th, we again visited the honeysuckle in King's Road; and, although it was almost blowing a gale of wind, succeeded in taking one moth. Besides the above captures, which have come under my more immediate notice, I have heard of the following:—Two were taken at rest on a white sheet hanging in a garden in Mount Durand; the captors, thinking them very beautiful, pinned them alive on some wax-flowers under a glass-shade, thinking, no doubt, that the insects would die in a very short time; both insects and flowers must have been greatly improved. Another specimen was exhibited in the window of a boot-maker's shop in Smith Street; and a gentleman living in Candie Road found one crushed on his garden-walk. My friend Mr. Cumber has also given me the following list of captures, most of which have been added to his collection:—Two taken in the sick-ward and one in the yard of Town Hospital; two in a garden in Brock Road; one at rest on a greenhouse, near Victor Hugo's house in Hauteville; one at rest on a railing near Salarie Battery; and one on a street-door knocker. A full-grown larva was brought me from Alderney on October 14th, and has been forwarded to Mr. Newman to describe in the 'Entomologist;' and I am informed that a great number of specimens of the perfect insect have been captured there this season.—*W. A. Luff; Guernsey.*

Description of the Larva of Sphinx Convolvuli.—Opportunities of examining the larva of Sphinx Convolvuli are of such rare occurrence in this country that I was delighted to avail myself of Mr. Luff's kindness in sending me a specimen. It was by no means what the various figures and descriptions spiracle forms the centre of a nearly circular black spot; the nine spiracles thus surrounded form the third spiracular series: the medio-ventral line, already described, is dilated into a black blotch between each pair of abdominal claspers; the legs are black and shining: the claspers are pale green, with black, curved and prehensile ciliæ; each has a black spot on its outer side. This larva was found in Alderney, feeding on the leaves of the large bindweed, Convolvulus sepium. The specimen buried itself on the 14th of October, and so remains. I will now say a few words about a pupa of the same species, dug up in a potato-field at Deptford, and now before me. This is two inches and an eighth in length, and of proportionate thickness: the case containing the maxillæ is transversely marked, as if with rings; it is perfectly detached from the body, except at its insertion; it is parallel with the body for two-thirds of its length, and then, after nearly touching the leg-cases, is bent inwards and upwards, and terminates in a blunt extremity; the anal extremity of the pupa is obtuse and scabrous.

The extraordinary abundance in which this species has appeared this year, as recorded in the pages of the 'Entomologist,' is only equalled by the records in the 'Zoologist' for 1846, when it appeared throughout the length and breadth of the kingdom. Taking the records alphabetically, we find it occurred at Aylsham, Blackheath, Bridlington, Camberwell, Carlisle, Chipping Norton, Chelmsford, Clonmel, Dunmow, Faversham, Hackney, Hessle-on-Humber, Hull, Huddersfield, Hythe, Kingsbury, and a variety of other places in the vicinity of London, Leyton, Leicester, Norwich, Nottingham, Preston, Reading, Sudbury, Tooting, Tunbridge, Uppingham, Winchester, York, and Yarmouth: in the last-named locality it is reported to have occurred "in immense quantities," one person having taken fifty-seven, and enormous numbers having been seen on Caistor Marrams, a sandy district by the sea-shore. The interval of twenty-nine years, between 1846 and 1875, did not pass without the occurrence of Convolvuli being occasionally noticed; and I find captures of the insect recorded in almost every volume of the 'Zoologist' or 'Entomologist' until this year. In 1868 it appeared in abundance on the Norfolk and Suffolk coast, more particularly at Aldeburgh, as recorded in the 'Field' newspaper. Its

Sphinx Convolvuli at Peckham.—I captured this morning on my way to school, in the Clayton Road, High Street, Peckham, a specimen of Sphinx Convolvuli. Having no box I was obliged to make a paper-bag to put it in, and it remained quiet for several hours.—*Arthur A. Barrett; 34, Radnor Street, Peckham, London, October* 4, 1875.

Sphinx Convolvuli and Macaria alternata at Christchurch.—Would it interest any of your readers to know that Sphinx Convolvuli occurs in this locality regularly every season during September? I have now on my setting-board two fine specimens, caught on the 14th and 15th September. Three years ago I captured in July several fine specimens of Macaria alternata; last year, two; this season, only one.—*W. McRae; Christchurch School, Hants, Sept.* 22, 1875.

Sphinx Convolvuli at Christchurch.—Between the 17th and 25th of September I had the good fortune to secure three fine specimens of Sphinx Convolvuli. Do the females of this species hybernate? If so, do they deposit their eggs before or after hybernation? Having several times attempted to procure eggs from captive females, I have in each instance failed. I should be glad of any information relative to this species which you or any of your correspondents can communicate.—*W. McRae; Christchurch School, Hants.*

Sphinx Convolvuli, Epunda nigra and Xylina petrificata at Newton Abbot.—On the 25th September last I captured two fine female specimens of Epunda nigra at sugar, and on the following night two more,—one at sugar and the other at light; they have never been caught here before; indeed, I had no idea that they came so far inland, they being generally caught by the sea-side in Devonshire, as, for instance, Teignmouth, Torquay, &c. I also had the good fortune to catch another fine Convolvuli, this making the fourth capture here this year. Last night (October 7th) I captured, for the first time, four specimens of Xylina petrificata at sugar; I believe they are considered a very local species.—*Charles G. Vicary; Knowles, Newton Abbot, October* 8, 1875.

Sphinx Convolvuli, Glæa erythrocephala, &c., at Wells or in Wales.—On showing my collection of Noctuæ the other day to the Rev. A. C. Hervey, he noticed a moth which I had placed near Cerastis spadicea, thinking it to be a variety of that species, as it was unknown

September a gentleman who was with me caught a specimen of Deiopeia pulchella flying at dusk on the cliffs near the Land's End, Cornwall; and, by searching near the same spot, I myself subsequently caught three more,—two on the 20th, and one on the 22nd September. All four specimens are in fine condition, and appear as though lately emerged from the chrysalis.—*Annie Michael; 3 & 4, Great Winchester Street, London, E.C., September 28, 1875.*

Deiopeia pulchella at Bournemouth.—I have to record the capture of Deiopeia pulchella on the coast of South Hampshire. Two were taken, and another seen, by the daughters of Lady Hester Leeke, who kindly presented me with one of them. Lady Hester has also sent me the following note on the subject:—"The first was taken on the grass-plot before the house at West Cliff, in the afternoon of September 16th; and the second on the East Cliff, near Boscombe Chine, among the tufts of stunted vegetation near the edge of the cliff, also in the afternoon, about three days after the capture of the first. They fly very slowly near the ground." The spots upon the fore wings of both specimens are much smaller than in the few foreign specimens I have seen; but such a variation is, I believe, not uncommon amongst continental examples of this beautiful, and until of late years very rare, British species. A friend informed me some time since that the species is very common in some parts of India.—*G. B. Corbin.*

Deiopeia pulchella and Epione vespertaria at Waltham Cross.—On the 19th of September last, when on the look-out for Colias Edusa and C. Hyale in a clover-field here, I took a specimen of Deiopeia pulchella. It is quite perfect and very fresh, apparently only just emerged from the chrysalis. It was flying heavily, settling occasionally on the heads of clover. On the previous afternoon I caught a male Epione vespertaria in the same field, at rest on a piece of wood; unfortunately its wings are somewhat crumpled. I believe this is a new locality for both species.—*Arthur W. Paul; Waltham Cross, October 4, 1875.*

Deiopeia pulchella in Devonshire.—A female specimen of Deiopeia pulchella was taken on the wing, on the afternoon of October 2nd, in Challice's nursery here.—*J. Purdue; Ridgeway, Plympton, Devon, October 19, 1875.*

little village on the borders of Dartmoor. I have also had the pleasure of capturing three more Xylina petrificata at Newton Abbot.—*Charles G. Vicary; Knowles, Newton Abbot, Devon, October* 22, 1875.

Xanthia aurago near Willesden.—On the 18th September, in company with Mr. A. Priest, I sugared an open fence near Willesden Junction, and was rewarded with a fine specimen of Xanthia aurago, an insect I did not expect to meet with so near London.—*C. Seabrook; Marlborough Square, Chelsea, September* 22, 1875.

Cirrœdia xerampelina in Scotland.—I took a good specimen of Cirrœdia xerampelina here, on the night of the 30th August last, at sugar.—*Robert Service; Maxwelltown, Dumfries, N.B., October* 1, 1875.

Cirrœdia xerampelina at Hendon.—In the autumn I am in the habit of sugaring the foliage of pyramid yews, Arbor vitæ and other shrubs, as I find that insects come more freely at this period of the year to sugar when laid so, than when spread on the trunks of trees. It was on a yew so baited I had the pleasure of taking a fine pair of Cirrœdia xerampelina; one, a female, on the 7th of September, and on the 8th a male on exactly the same spot. Xanthia gilvago has been rather common here this season.—*R. South; Goldbeater's Farm, Hendon.*

Eremobia ochroleuca in Cambridgeshire.—I see that in Newman's 'British Moths,' Brighton and Lewes in Sussex, Bristol, Suffolk, and Yorkshire, are the only localities given for Eremobia ochroleuca. I took two or three specimens about the middle of August, some five or six years ago, at Gamlingay, in Cambridgeshire; they were flying about thistles and other wild flowers by day. I saw several others, but did not take them.—*John T. Sarll;* 8, *High Street, Camden Town, October* 7, 1875.

Ennomos fuscantaria.—On the evening of September 22nd I took from the street-lamps two specimens of Ennomos fuscantaria; one in good order; the other was unfortunately spoiled in boxing.—*Joseph Anderson, jun.; Alresford, Hants.*

Catocala electa at Brighton.—On the 24th of September I had the good fortune to take at sugar, about eight miles from Brighton, a specimen of Catocala electa, which I think

viii. 229). My specimen proves to be only a pale variety of Proteus. It was quite an oversight of mine recording the capture, as I had not previously compared it with examples in my cabinet; and the plates of Proteus in Newman's 'British Moths' are quite different to any I have ever seen of the latter species. Indeed, I should have believed the plates to represent a different insect.—*W. Thomas; Surbiton Villa, Surbiton, October* 6, 1875.

[I fear that others of Mr. Thomas's captures have been incorrectly named. I need hardly point out the necessity for greater care.—*Edward Newman.*]

Answers to Correspondents.

John Bristow and Arthur W. Paull.—Pear-tree Slug.—This is a matter which may prove interesting to your readers, and concerning which I should be glad to have information. A friend of mine, living near Belfast, informed me that his pear-trees were being destroyed by an insect which neither he nor his gardener had ever seen before. In two large gardens almost every pear-tree was attacked, while plums, peaches, &c., even though their leaves withered, were untouched. On examination I found the leaves covered with what at first sight appeared small leeches, about half an inch long, of a shining, dark olive-green colour, almost black; the head was swollen; and the tail, at its extreme point, generally slightly raised from the leaf. The whole insect was covered with a dark slime, that gave it the appearance of a leech, neither legs nor distinct head or mouth being visible. On rubbing one of the insects, however, I found the slime rubbed off, and revealed a larva, with distinct characteristics of that of a sawfly. The leaves are denuded of their soft cuticle, both on upper and under side, and the brown skeleton of fibre alone left. When feeding, the larva is at full stretch, apparently adhering as close to the leaf as a leech or slug, and no appearance of head, the shining slime covering all. Can you inform me of what species this is; or if it has been observed in such destructive numbers elsewhere?—*J. B.*

[The creature is the very objectionable pear-tree slug, of which an account will be found in the current number. I am indebted to the courtesy of Mr. Arthur W. Paull, of Waltham larva is certainly that of Acronycta Alni, much shrunk owing to the exhausting operations of the parasites preying on its vitals. The parasites are a species of Anthomyia, probably that called Musca Larvarum by Linneus. The other insect is Ricinus Canis, the common dog-tick; of course it has no connection with the Acronycta.—*E. Newman.*

Henry J. Slack.—Moth with Perforating Maxillæ.—Last year Mr. McIntire presented to the Microscopical Society a slide containing the antlia of an unknown moth, with the extremity adapted for perforation. The 'Comptes Rendus' for August 30th, 1875, gives a paper by M. Künckel on "Perforating Lepidoptera," with figures of the auger-like proboscis of Australian Ophideres. The paper refers to an account given in the 'Capricornion,' published at Rockhampton. I can learn nothing of this magazine, which I suppose from its name is issued in tropical Australia. I shall be much obliged if you can tell me whether any English moths have perforating proboscis, or any others you may be acquainted with. I fancy that, as many entomologists are not microscopists, such a piece of apparatus may have been overlooked. The mounters of objects usually select insects easily obtained, and we may have some like the Ophideres in the respect mentioned. The Ophideres are reported to attack oranges.—*H. J. S.*

[I have not seen the paper in the 'Comptes Rendus' to which my correspondent refers, nor do I know any instance of an English moth possessing perforating maxillæ; still I am by no means disposed to deny or doubt the existence of such a structure. Turning to Westwood's 'Modern Classification,' I cannot find any notice of this peculiarity; and I think that most industrious and praiseworthy compiler would scarcely have overlooked, or failed to repeat, such a record, had one existed prior to 1840,—the date of his great work. Notwithstanding this apparent absence of record, there is nothing improbable in the statement. I must here call attention to the universal belief, repeated by Westwood (Classification, ii. 498), that "the mouth of Diptera is formed only for imbibing fluid matter;" and contrast this with what I have stated to be the truth, as shown by Müller, Bowerbank, Deane, Bennett, and a host of others, and corroborated by my own observations, that all those Diptera, supposed to frequent

Church Room of St. Mark's Institute, George Street, Oxford Street, on the evenings of the 2nd and 3rd December, from 6 to 11 o'clock P.M.—*E. W. Timms; Secretary.*

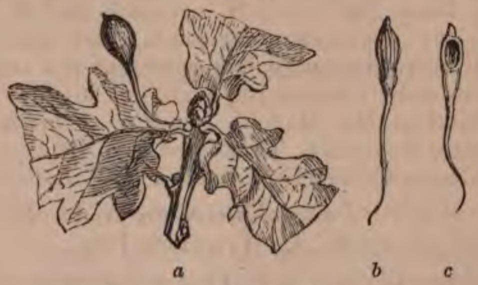
Haggerston Entomological Society.—The Annual Exhibition of this Society will be held in their rooms at the 'Brownlow Arms,' Brownlow Street, Haggerston, on the evenings of Thursday and Friday, November 11th and 12th, from 7 to 11 P.M. All entomological friends are invited to attend; the first evening being specially reserved for them. Anyone wishing to exhibit will kindly send their exhibitions on or before Thursday evening, November 11th, to the Secretary, Mr. Bartlett, at the above address.

Leeds Naturalists' Field Club, and Scientific Association.—At the one hundred and eighty-ninth meeting of the above Association, September 15th, 1875, Henry Pocklington, F.R.M.S., President, in the chair, Mr. James Abbott reported the capture of Colias Edusa on the 5th September, on the Otley Road, near Adel Dam, five miles north of Leeds. The insect was identified by Mr. W. E. Clarke. Other members reported that a specimen of Vanessa Antiopa had been taken about a fortnight ago in the neighbourhood of Kirkstall Road, Leeds, and was now in the possession of Mr. C. W. Liversedge.

Death of Mr. Charles Tester.—It is with sincere regret I record the death of Charles Tester, of Balcombe. He died at his residence, Sherlock's Farm, on the 17th of September, at the age of forty-eight, after a very few hours illness. Mr. Tester never went far from home in search of insects,—Brighton and Lewes being the longest journeys he ever made,—but he worked his own locality well. In his youth he met with a sad accident by the bursting of a gun, which caused the amputation of his left hand; shortly after which his brother shot his right hand off, thus leaving him in an almost helpless state; but by various ingenious inventions he could manage to use a net and cyanide-bottle; and we have to thank him for most of the British examples of Dicranura bicuspis, Sesia spheciformis, Notodonta carmelita, Noctua ditrapezium, and Cucullia Gnaphalii.—*E. G. Meek; 56, Brompton Road.*

33. *Aphilothrix callidoma*, Hart.—This beautiful spindle-shaped and long-stalked gall breaks forth from the axils of Quercus pubescens in such a manner that the small bud, from the point of which the thin pedicle proceeds, is not altered externally. The gall is about the size of a barley-corn, either short or long spindle-shaped. Its surface is green or red when recent; later on it becomes reddish brown, and exhibits a few or many either sharp or indistinct longitudinal striations. However, in some specimens there is not a trace of these striations to be detected. The top of the gall is marked, and terminates in a wart or short cone: it has a yellow-brown colour, and is bald; the remaining part of the gall and the foot-stalk are scantily covered with moderately short, white, deflected hairs. Sometimes one meets with specimens in which the thin stalk is rather short, and the basal half of the spindle very long, with the upper half, however, very short. In the section the cell appears as a large, longitudinally oval cavity, bordered by a thin, white, inner gall, which is on all sides conterminous with the substance of the gall; above and beneath this inner gall is found a brown reticulation. According to Dr. Giraud's observations the galls are found from the month of July to October, and the earliest fall off, whilst others are only beginning to develop themselves. I have myself only found them once late in the autumn.—*G. L. Mayr*.

Fig. 33.



a. APHILOTHRIX CALLIDOMA in situ. *b*. Detached. *c*. A section of the same.

This gall was first described by Malpighi; and Hartig did weather during most of the month was most unpropitious for collecting, we having such continued rain and wind, which not only prevented work, but soon spoiled the condition of most insects. All the male Apatura Iris I took were more or less damaged, but the females were in fine order. This species continued on the wing the month through, that is to say, when the weather would permit. I captured a male on the 31st. I got eggs from two females, but unfortunately they proved infertile. Catching Apatura Iris is most exciting work, but it involves a great waste of time, as one has to wait the coming of their majesties, and this year they were scarce,—some days not one would be seen,—and a long ash-pole is not a convenient thing to collect with generally.

The exquisite little Nola albulalis, too, was one of my objects of search, and I succeeded in taking it in splendid order; and when really fine it is extremely pretty. I failed, as did everyone else, to find it in the numbers Mr. Porritt reported last year; this season Mr. Porritt only secured nine or ten specimens in his week's stay. I found this species particularly influenced by weather,—the slightest fog or north-east wind and you may as well go home, for not a specimen will rise, although I could take them when the underwood was saturated with heavy rain.

A striking feature to me was the absence of any of the fritillaries: the only species I saw during my stay was Melitæa Athalia, and of that very few indeed; possibly that species was over. Thecla W-album was common, but soon out of condition, owing to the wet and wind. The autumn brood of Lycæna Argiolus was just out as I left. The common Vanessidæ and Satyrs comprised the Diurni; in fact this group was but poorly represented.

The wet, cold weather seemed propitious for sugar, as I never experienced such a numerous attendance at my ambrosial banquets before; many species absolutely swarmed. I have counted over fifty Rodophæa tumidella on one tree, beside hosts of others. Although I got nothing especially rare, I secured a fine series of many good things: Lithosia quadra was a rare visitor; Mamestra abjecta, I got but one; Agrotis ravida, a fine series; Triphæna fimbria was most abundant, and in every shade of brown from palest to

Recreations of a Country Doctor concerning Sugaring.

By H. W. LIVETT, M.D.

IT was about the year 1830 that I met with and was enchanted by Rennie's books in the Library of Entertaining Knowledge,—'Insect Transformations,' &c. From that time to the present (with, I am sorry to say, an *hiatus* of some twenty years) I have been a collector, though still but a "discipulus," as quaint old Izaak Walton says. One reason why I have not attained the rank of "magister" may be because I have not known anyone near of kindred taste with whom I could work and learn; but the principal hindrance has been my limited opportunities, owing to the engrossing nature of my profession,—one which of necessity occupies nearly all one's time, often Sundays as well as working-days.

With what envy have I read from time to time of expeditions to the New Forest or other favoured localities, with the long lists of consequent captures; of the "happy hunting-grounds," where larvæ of the most desirable species would tumble into your umbrella at each tap of the beating-stick; or where the graceful Camilla might be seen "skimming lightly o'er the plain;" where C. Edusa and Hyale might congregate; or even the great emperor himself might royally disport, delighting the eye and quickening the pulse of the would-be captor! But to me—occupied most of the day, and of necessity at home when not so occupied, with holidays very few and far between—such delights were only to be read of and dreamt about, not to be enjoyed. Doubtless there must be many an aspirant to entomological knowledge with like limited opportunities;—for the encouragement of such I write this paper.

I live in a small city,—a *rus in urbe*, certainly,—and in which most of the private houses have gardens attached: my own is a fairly good one, and in it I have taken many species, some rare. In 1868 we took eight specimens of S. Convolvuli, hovering over a small bed of petunias less than three feet in diameter; and all of which specimens, I may note by the way, were seen at exactly the same time on the five or six evenings they appeared, *viz.* just at twilight. I took in 1872 a specimen—the only one I ever saw—of D. rubiginea, on the berries of a yew on the lawn. C. sponsa and G. erythrocephala—the last an especial great take—fell victims to their

A. tridens; A. Rumicis; L. lithargyria, plentiful; L. straminea; A. putris; X. lithoxylea; X. polyodon, dozens; A. oculea; M. strigilis; C. cubicularis; A. puta, a dark series; A. suffusa; A. saucia; A. segetum; A. exclamationis, dozens; A. nigricans; T. janthina; T. orbona and T. pronuba, dozens; N. augur; N. plecta; N. C-nigrum, common; C. Rubi; C. xanthographa, dozens; T. cruda; O. macilenta; A. pistacina, dozens; A. lunosa, plentiful; C. spadicea, a few; S. satellitia, common; X. ferruginea, common; P. flavocincta, dozens; M. Oxyacanthæ, many; A. aprilina; P. meticulosa, common; X. lithoriza; C. exoleta; X. rhizolitha, many; X. semibrunnea, eight; A. Tragopogonis, common; C. nupta, three; besides a few Geometers and Pyrales.

The interest attached to sugar capturing is certainly great, —something similar I should imagine, "parva componere magnis," to that of the sportsman in the East, who cannot tell what noble game may leap out of the tangled jungle at any step; so on a dark night, when the moth-hunter proceeds with "stealthy steps and slow" to the sweetened tree, and turns on the light, he cannot tell what almost unknown rarity may possibly delight his eyes and reward his pursuit; and even some of the more common insects—M. Oxyacanthæ or C. diffinis, for example—appear, I think, more beautiful under the lamp than at any other time. I know that when I saw C. exoleta the other night, under such circumstances, I could not imagine what grand prominent I was beholding,— with his full crest and closely shut-up wings he was exactly like some important member of that family.

But it is quite time that I should conclude this gossipy paper. Scientific entomologists and practical collectors may think it, I fear me, not worth the space it occupies. I trust there are some, like myself—collectors under difficulties— to whom this paper may afford some measure of encouragement when they see how much may be done with but limited means and space at command.

Should there be a locality where A. pistacina and P. flavocincta are not plentiful, it will give me much pleasure to send any applicant a few, as long as I have any, if he will first send me a post-card. If he receives no reply he must consider that my stock is exhausted.

H. W. Livett.

Wells, Somerset.

[illegible] [illegible] on the surface of the earth. The pupa is bright red, and resembles that of [illegible] [illegible]. Another somewhat similarly-coloured larva, apparently that of a Tortrix, feeds inside the cones in company with that of [illegible] [illegible]. Sir Thomas Moncreiffe believes it to be [illegible].—[Rev.] H. Harpur Crewe; *Drayton-Beauchamp Rectory, Tring, November 1, 1875.*

Paucity of Wasps; Destruction of Fruit by Bees.—I have observed that the bees have been in the fall as destructive to the fruit as wasps are in ordinary years: figs, peaches, plums, and pears, have been entirely eaten away by them. Can there have been any failure in the honey from the flowers this year? or is it only the presence of the wasps that keeps away the bees from the fruit in ordinary years? Last year our honey was all eaten, and our bees nearly destroyed by the wasps. Queen wasps were, as you observe, very abundant in the spring; still this paucity of wasps is general. A fortnight ago I was staying with a friend about five miles to the north of Launceston, and I never saw wasps more abundant than they were there.—[*Rev.*] *G. C. Green; Modbury, South Devon, October 4, 1875.* [*From the 'Field.'*]

[There is no doubt that the past autumn has been remarkable for both these phenomena. I have received fifty-one letters on the first subject, and the daily papers have teemed with communications on the second. In the spring of this year queen wasps were observed in unusual numbers; and it was generally supposed that the workers would be proportionately abundant in the autumn. This has not been the case; but, on the contrary, wasps have been either fewer than usual or entirely absent. Cornwall, Dorsetshire, Devonshire, Norfolk, Nottinghamshire, Somersetshire, Suffolk, Surrey, and Sussex, have generally enjoyed immunity from the visits and depredations of wasps; while from one locality in Essex, and two in Kent, the number appears to have been as large as usual; and from several localities in Lancashire, Yorkshire, Durham, and Northumberland, greater abundance than common has been reported. In the garden of Her Grace the Duchess Eleanor of Northumberland bottles baited with sugar and water were found to be almost filled with wasps; and the contents of two of these bottles were counted, and found to be respectively nine hundred and one thousand two

Lepidoptera near Folkestone.—C. Hyale, tolerably plentiful. C. Edusa, rather scarce. E. russula, eleven females and seven males, bred from the eggs laid in July, and many captured. A. gilvaria, plentiful. L. albipuncta, four. A. saucia, seven. N. glareosa, three in the Warren. N. Dahlii, six. X. cerago and X. silago, plentiful on flowers of Scabious. X. flavescens, *var.*, one. X. gilvago, *var.*, two, the bar being broken into dots. Is it not strange that the original type has not been taken? T. retusa, one, worn. P. flavocincta, two. E. lichenea, two. C. vetusta, seven. C. exoleta, five. X. semibrunnea, three. H. armiger, one, very fine. S. anomala, one. *Pyralides.*—S. palealis, six. M. polygonalis, one. —*G. Haggar; 71, Granville Terrace, Folkestone, Nov.* 13, 1875.

Colias Hyale abundant, and C. Edusa, near Maldon.—During September I succeeded in taking as many as seventy specimens of Colias Hyale, the greater part in a large clover-field, in Woodham Mortimer parish, but something like a score in a lucerne-field, on the glebe-land belonging to Hazeleigh Rectory. One of the females deposited eight eggs —seven in the bottom of a pocket-box, and one on a clover-head: these unfortunately proved to be infertile, shrivelling up in a few days. Colias Edusa was not abundant: I only secured twelve good specimens, three of which were females. —*Gilbert H. Raynor; St. John's College, Cambridge, November* 10, 1875.

Colias Edusa at York.—On Thursday, September 9th, I captured a fine specimen of Colias Edusa; on the 11th two more; and on the 25th a Sphinx Convolvuli.—*J. Hawkins; Holgate, York, October* 23, 1875.

Sphinx Convolvuli at Newport, Isle of Wight.—It may interest entomologists to hear that I have taken two specimens of the Convolvuli hawk-moth. I caught them both soon after sunset, hovering over a bed of geraniums, on the 22nd and 26th of September.—*Frank Morey; Newport, Isle of Wight.* [*From 'Science Gossip.'*]

Deiopeia pulchella at Hastings.—I am pleased to be able to record the occurrence at Hastings of a specimen of Deiopeia pulchella on the 17th of October, in a field near here.—*E. A. Butler.*

Deiopeia pulchella in India.—One of your correspondents in the November number (Entom. viii. 280) alludes to having power. These two characters are always present in Lepidoptera; and I believe Coleoptera never possess them.—*Edward Newman.*]

John B. Bridgman.—Export of Bees to New Zealand.—I enclose a notice from 'Nature' which I cannot understand. Can you help me? *What* did Buckland send?—a nest of humble-bees seems to me simply nonsense; and until now I was under the impression that by far the greater part of fertilisation of clover was done by what I suppose is meant by the "common" bee—the hive-bee. About here, during the time the clover-fields are in full flower, the fields are literally alive with hive-bees, and the noise they make may be heard some distance; of course Bombi are to be found there also. The only other bee I have seen at clover is Cilissa tricincta, and that is only one spot of white clover. "Two nests of English humble-bees were last week sent to New Zealand by Mr. Frank Buckland for the Canterbury Acclimatisation Society. These insects are specially desired in New Zealand for the purpose of fertilising the common clover. The proboscis of the common bee is not sufficiently long to reach down to the pollen of the clover-flower, while the humble-bee is enabled to do so. In this way the insect is expected to do great service to the agriculturist by largely extending the growth of clover. The bees were packed in their own nests in two boxes, and will be under the charge of a member of the New Zealand Council, who is provided with every necessary for their welfare during the voyage. They are expected to arrive about the middle of January—midsummer at the Antipodes." ('Nature,' p. 527, October 14th.)—*J. B. B.*

[I have a good deal to say on this subject hereafter; but may just state that I have worked hard at these bees with the valued assistance of the late Mr. Walker and the late Mr. Doubleday, in addition to that of many naturalists still living. Mr. Smith from time to time kindly named our captures, and I shall adopt without hesitation his nomenclature of the species. The published observations of Mr. Buckland and of the Editor of 'Nature' convey no idea to my mind, nor do I think they will to the minds of entomological readers generally.—*Edward Newman.*]

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D. 107 [illegible]